



AGRICULTURAL RESEARCH INSTITUTE
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The Journal

OF THE

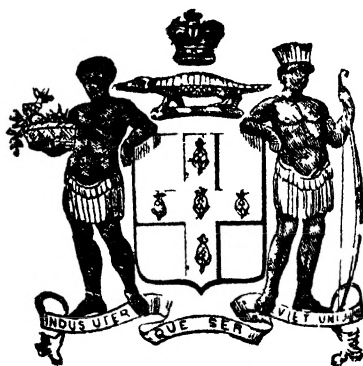
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The Journal

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Vol. 10.

JANUARY 1906.

No. 1.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Wednesday, 13th December, 1905, at 11.30 a.m. Present:—His Excellency Sir J. Alexander Swettenham, K.C.M.G., presiding; Hons. H. Clarence Bourne, L. J. Bertram, W. Fawcett, Dr. Pringle, and R. P. Simmonds, Messrs. John Cameron, D. Campbell, R. Craig, C. A.T. Fursdon, E. W. Muirhead, Joseph Shore, and the Secretary, John Barclay.

The Minutes of the previous Meeting having been published in the November Journal were taken as read and confirmed.

Seville Oranges. The Secretary read reports *re* Seville Oranges and exhibits as fruits as follows:—

I beg to report that in connection with the test of Seville Oranges for marmalade making, I have sent to Messrs. P. MacLachlan & Co., Glasgow, 16 barrels and 4 boxes, and to Messrs. Gillespie Bros., London, 10 barrels and 6 boxes, supplied by the following gentlemen:—

Hon. H. E. Cox, Claremont, St. Ann, 10 barrels.

Mr. E. W. Muirhead, Mandeville, 11 barrels and 10 boxes.

Mr. H. G. Sturridge, Mandeville, 5 barrels, by the Direct Line Steamers leaving on the 11th and 26th October, and on the 9th November, freight free.

JOHN BARCLAY, Sec.

I beg to report that I shipped on the 18th November by the R. M. S. "La Plata" via New York, to the Exhibition of Colonial Fruit to be held under the auspices of the Royal Horticultural Society of England, in London, on December 5th and 6th, the following exhibits of our fruits:—

From Mr. Geo. W. Webb, Coleyville, Christians, 4 crates of Bananas, 2 boxes Lemons, 2 boxes Grapefruit.

From Mr. H. G. Sturridge, Mandeville, 4 boxes Seville Oranges.

From Mr. E. W. Muirhead, Mandeville, 6 boxes Oranges, 1 box Navel Oranges, 2 boxes Seville Oranges, 3 boxes Grapefruit.

From Mr. R. L. Young, Brown's Town, 3 boxes Navel Oranges.

From Mr. O. A. M. Feurtado, Belle Vue Plantation, 1 box Preserves and Banana Meal.

JNO. BARCLAY, Sec.

On the suggestion of His Excellency it was decided to forward the thanks of the Board to the various gentlemen who had supplied these exhibits.

Banana Fibre. The Secretary read his report *re* Banana Fibre as follows.—

I beg to report that I forwarded to Mr. James Anderson, Arbroath, and the Clepington Spinning Mills, Dundee, since last meeting, per S. S. "Port Royal" on October 26th, and the "Port Kingston" on November 9th, samples of banana leaves and banana stems for experiment, kindly supplied free by Mr. R. H. Hotchkin and Dr. Pringle.

JNO. BARCLAY, Sec.

And the following letter from Sir Daniel Morris on the same subject:—

Imperial Department of Agriculture for the West Indies,

Barbados, 12th September, 1905.

DEAR MR. BARCLAY,—A copy of a long letter addressed to the "Dundee Advertiser" by Mr. James Anderson of Arbroath, in which he discusses my views in regard to Banana Fibre, has been sent for my information.

2.—I notice that Mr. Anderson in reply to your letter of August 18th, is unable to advise the Society where a market is to be found for Banana Fibre, what it is used for, and the price likely to be obtained for it. In the absence of definite information on these points Mr. Anderson's letter leaves matters practically where they were before.

3.—It might be useful to refer members of the Agricultural Society, who desire fuller details as to what has been done in Jamaica in investigating the commercial value of Banana Fibre, to the following publications in which I have dealt with the subject:—

- (1). Native and other Fibre Plants. Institute of Jamaica Lectures (3rd Series), 1884, pp. 34-41.
- (2). Report of Director of Public Gardens and Plantations, Jamaica for 1884, pp. 35-38.
- (3). Kew Bulletin, 1899, Additional Series II., pp. 97-109.
- (4). Cantor Lectures on Commercial Fibres delivered before the Society of Arts, 1895, pp. 18-19.

I also enclose a summary of the facts obtained as the result of experiments during the last 20 years. They are as follows:—"A banana stem just after fruiting if cut as is usual with the country people, about two feet above ground, and denuded of its foliage, weighed 108lbs., this being divided into three lengths of 2½ feet each, and split longitudinally into several pieces was prepared by beating and washing by hand, and yielded 25 ozs. of clean marketable fibre, which is at the rate of 1.44 per cent. of the gross weight. The fibre of the lower portion of the stem, as also the fibre in the petioles of the leaves was not extracted."

4.—A smaller banana, cut under similar circumstances that is, two feet from the ground, and denuded of its foliage weighed 41lbs. This was divided into two lengths of 2½ feet each, and after being split longitudinally into several pieces was prepared by hand, and yielded 6½ ozs. of clean fibre or at the rate of 1.02 per cent. on the gross weight.

5.—At the Hope plantation similar experiments were conducted with banana stems which yielded very much the same results. Two banana stems cut after fruiting, at two feet from the ground, and denuded of their leaves weighed 147lbs. These yielded 33 ozs. of clean fibre, or at the rate of 1.44 per cent. on the gross weight.

6.—From ordinary stems of banana, cut after fruiting at about 1½ to 2 feet above ground, a settler might prepare about 1½lb. of clear fibre, but if the stems are large and if the whole length is used as well as the petioles of the leaves, the amount of the fibre might be increased to 2½lb. if not 3lb per stem.

7.—The reports submitted by leading firms of fibre brokers on the above samples of Jamaica banana fibre were as follows:—Messrs. Ide & Christie, *Banana*

Fibre : "This is only fit for paper worth about £7 or £8 per ton." Messrs. Collyer & Co., *Banana Fibre* : "No market for this, very weak, poor colour, woody, nominal value £14."

8.—It must be borne in mind that to obtain one ton of banana fibre it will be necessary to handle nearly 100 tons of fresh stems. These cannot be carried to a central place for treatment, otherwise the cost of the fibre would be increased beyond its market value. The stems will be required to be dealt with on the spot. It is probable that for banana fibre bought in Jamaica not more than £6 per ton (or less than 1d. per lb.) could be offered for it.

9.—At the time I was investigating banana fibre I suggested, "that the merchants who purchase the fruit from the growers might offer a small sum for clean and well dried fibre, and take it in small lots as it comes to hand. The merchants could afterwards sort and pack the fibre and put it up in tightly compressed bales for shipment. Some such plan as this, suited to local circumstances would probably offer the best means of starting a banana fibre industry in the West Indies." Whether it would pay or not would depend on the purpose for which the fibre is used and the market value at the time.

10.—If the Jamaica Agricultural Society is wishful of making another experiment I suggest that fresh specimens of banana fibre, carefully cleaned and dried, might be prepared and forwarded for valuation and report to London and New York.

11. — Mr. Anderson somewhat vaguely suggests that banana fibre might be used as "binder" twine in the place of Manila fibre. This is a matter that might easily be determined by sending a sample to the leading firms in America who supply "binder" twine and invite their opinion as to its value as compared with Manila and Sisal twines.

With kind wishes, very sincerely yours, D. MORRIS,
Imperial Commissioner of Agriculture for the West Indies.

Imperial Department of Agriculture for the West Indies,
Barbados, 15th November, 1905.

DEAR MR BARCLAY,—I am in receipt of your letter of 23rd October. In regard to the sample of banana leaves desired by Mr. Anderson and by the Clepington Spinning Co, Dundee, the difficulty will be to send these to arrive in good order on the other side and in such a condition that the machine can be properly tested in extracting the fibre.

It is not quite clear what is meant by banana leaf. Is it the lower part of the sheath which forms the stem of the banana, or the flat blade which comes out of the top of the so-called stem?

In order to assist in testing the value of banana fibre when prepared in a fresh condition, I am having samples cleaned at Barbados, and these I hope to send to different people and ask their opinion as to their value for commercial purposes as compared with jute and other fibres.

My own opinion is that Mr. Anderson and the other people know so little really, at first hand, what banana fibre is and the small proportion of clean fibre that it is possible to obtain from each stem (only about one per cent.) in consequence they have an exaggerated idea as to the possibilities of the fibre.

I shall let you know later what further information I am able to obtain so as to bring the facts to date.

I hope that my previous letter to you on the subject will be published in order that it may be on record what has already been done in regard to banana fibre in Jamaica.

With kind wishes, very sincerely yours, D. MORRIS.

Also further letter from Mr. James Anderson, Arbroath, as follows :—

6, Hillend Road, Arbroath, 16th October, 1905.

SIR,—The enclosed trace of fibre is extracted from a bit of plantain leaf that I got from a fruiterer here. It is different from any that I have had, being flat without any rib centre, and is one of those that I think that forms on the plant like a plume where the long rib leaves branch out. This shows the length that I had. Its breadth would be about this sheet of paper, and this

is all the fibre it contains taken as it is from leaf that is withered and mildewed. It shows what the fibre would be if taken out before the leaf has died, as all its gummy substance got pasted on the fibre every hair of which is coated with matter. Fibre like this will make an excellent binder twine and will sell more readily being lighter than New Zealand, at not less than £28 a ton. As you say 300 plants may be cut per acre, suppose these only yielded 2lbs. of clean fibre, that is 600lbs. at 3d. equal to £7 10s. gross per acre; on 50,000 acres equal to £375,000. Cotton that has to be annually sown only yields per acre about 450lbs. Flax even less, and much of it brings less per ton than £28. Seeing that plantains cost nothing to produce for this purpose there is nothing to stand in the way of fortunes being reaped if taken up now by those who can collar supplies. If they are waiting until someone gives them all the particulars as to how this can be accomplished so far as I know how to do the work, they will have to wait. I can do the work successfully and know the simple kind of hand machine that is needed to move about for the work, so you see that no money can be lost in putting the extraction of plantain fibre in operation, and with me it is no cure no pay. If ever I get a chance at it there will need to be ample supplies of raw leaf, secured years ahead before I put my system in working order. A trifle of money would start me, so small that it would not be worth anyones while to see expended. The money is really no object, it is supplies of the leaf and the money will come out of that and the pockets of those who buy the fibre. It will at once pay its way with me as no experiment is needed.

Yours respectfully, J. ANDERSON.

After discussion, whether the manurial value and mechanical effects of the waste banana stems and leaves to the soil would not be greater value to the planter than the value of the banana fibre if they were taken away, the Secretary was instructed to answer the letters and mention this point of view to Sir Daniel Morris and Mr. Anderson.

Contagious Diseases The Secretary read the following letters
Animal Law. from the Colonial Secretary's Office:—

9717-5725.

Colonial Secretary's Office, 3rd November, 1905.

SIR,—With reference to your letter No. 5150, dated the 15th March last, I am directed to ask you to be so good as to state whether the Agricultural Society are yet in a position to submit their views with regard to the proposed law for the prevention of the spread of contagious diseases among animals.

I have the honour to be, Sir, your obedient servant,

T. LAWRENCE ROXBURGH Asst. Col Sec.

In connection with this he read the following report from the Live Stock Committee:—

The Live Stock Committee met on Wednesday, 13th inst., at 11 o'clock Present, Hon. W. Fawcett in the chair, Messrs. Craig, Fursdon, Muirhead, and the Secretary, and beg to report as follows:—

The crux of this Bill appears to be the absence of any provision for the necessary professional knowledge to pronounce with accuracy that contagious disease exists and to describe it.

The Bill assumes that any Inspector of Constabulary (either *ipso jure* or *ipso facto*) is possessed of this knowledge, which in the opinion of the Committee is absurd, but nevertheless on the strength of this report, the Governor in Privy Council may issue what orders he likes—including orders for the destruction of all animals suffering from disease or suspected of being infected—without compensation to the owners—and presumably also owners can be saddled with all other expenses incurred under the Bill.

The opinion of the Committee is that it should be opposed by the Agricultural Society. Until a workable and fair Bill is put forward, it is a waste of time to consider the clauses of the present one. W. FAWCETT, Chairman.

The report was unanimously adopted:

Applications for the use of the King's Shorthorn Bull were considered (1) from Mr. A. B. Ventresse, to be kept at his dairy Elmtree Cottage, St. Andrew, where he had a herd of 12 imported dairy Shorthorn cows, and (2) from Mr. Chas. Costa, Brown's Town, who previously had charge of the Aberdeen-Angus Bull "Alaska." The Committee decided to place the Bull with Mr. Ventresse, the period to be arranged with him and the Secretary, as they thought the bull would do most good in perpetuating the breed there; and it was not thought judicious to remove the bull from the plains to St. Ann at this time of the year; Mr. Costa's application to remain in force until consideration of a new station for the bull was made.

This arrangement was confirmed.

Letters relative to the West Indian Agricultural Conference;
W. I. Agricultural Conference.

10372-12361.

Colonial Secretary's Office, 25th November, 1905.

SIR,—In continuation of my letter No. ——— 11482, of the 26th ult., I am to inform you that a telegram has been received from Sir D. Morris, intimating that, owing to insuperable difficulties in the way of holding the West India Agricultural Conference at Jamaica next year, the proposal has had to be definitely abandoned.

I have the honor to be, Sir, your obedient servant,
H. CLARENCE BOURNE, Colonial Secretary.

10697-12521.

Colonial Secretary's Office, 6th December, 1905.

SIR,—In continuation of my letter No. 10372-12361, of the 25th ult., I am directed to transmit herewith for the information of the Jamaica Agricultural Society, a copy of a letter which was written to me by Sir Daniel Morris some days prior to the despatch of his telegram on the 15th ult., intimating that the proposal for holding the West Indian Agricultural Conference in this Island next year had been definitely abandoned.

I have the honor to be, Sir, your obedient servant,
T. LAWRENCE ROXBURGH, for the Colonial Secretary.

Imperial Department of Agriculture for the West Indies,
Barbados, 7th December, 1905.

MY DEAR BOURNE,—I have to thank you for your letter of 3rd October. I have no further news to give in regard to the prospects of holding the Agricultural Conference at Jamaica. I am to have an interview with the Chairman of the Royal Mail Company on the 12th inst. when he is passing through Barbados. It is just possible that after he has consulted with the Superintendents at Trinidad and Barbados he may be able to suggest something of a practical character. I am not, however, very sanguine.

Before you have received this letter you will have received a telegram giving the result of my Conference with Mr. Owen Philipps.

I shall be extremely sorry to have to give up the idea of coming to Jamaica, but it would be impossible to spare the services of all the leading officers connected with agriculture in these islands for a period of four or five weeks. Everything would be at a standstill and also at a time when the sugar, cotton and other crops require special attention.

If the conference is abandoned, I ask you to be kind enough to express my sincere thanks to the members of the Board of Agriculture and the Agricultural Society for the interest they have taken in the subject, and the promise of assistance so kindly and generously offered by the leading planters of the island. Also that it is a source of great disappointment to me to find that after having carried the preliminary arrangements so far our labours should prove fruitless. It is evident that if we could have managed to hold the Conference at Jamaica it would have been a very successful one. I believe it would have awakened a considerable amount of fresh interest in agricultural matters, and have been the means of advancing the general prospects of the island.

Believe me, very sincerely, (Sgd.) D. MORRIS.

Estimates 1906-07. The Secretary submitted the Estimates for 1906-07, which after discussion on the various items were adopted as follows :—

EXPENDITURE.	ALLOCATIONS. 1905-1906.	Estimates, 1905-1906.
Secretary's Salary ...	£250 0 0	250 0 0
Clerks, Typist, and Office Messenger ...	184 0 0	184 0 0
Local Instructors (3) ...	320 0 0	320 0 0
Rent and Taxes ...	48 0 0	48 0 0
Office Furniture ...	5 0 0	5 0 0
Printing Journal ...	315 0 0	315 0 0
Postage and Carriage ...	25 0 0	25 0 0
Stationery and Sundry Printing ...	35 0 0	35 0 0
Prize Holdings ...	100 0 0	100 0 0
Stallion Expenses ...	40 0 0	40 0 0
Bulls ...	5 0 0	5 0 0
Agricultural Shows ...	...	...
Experiments ...	...	...
Exhibitions ...	...	...
Travelling ...	80 0 0	80 0 0
Telephone ...	7 4 0	7 4 0
Advertising ...	3 0 0	5 0 0
Sundries ...	40 0 0	38 0 0
Total	£ 1,457 4 0	1,457 4 0

INCOME.		
Subscriptions ...	£90 0 0	90 0 0
Advertisements ...	40 0 0	30 0 0
Stallion Fees ...	40 0 0	21 0 0
Small Holdings ...	7 10 0	7 0 0
Affiliations ...	10 0 0	10 0 0
Bulls ...	...	...
Journals ...	0 0	1 0 0
Sundries ...	0 0	1 0 0
	£189 10 0	160 0 0

ABSTRACT.

	£	s.	d.
Balance brought forward from 1904-05 ...	147	12	3
Estimated Income ...	163	8	0
Government Grant ...	1,250	0	0
	1,561	0	3
Estimated Expenditure to 31st March 1906 ...	1,431	0	0
	130	0	3
Estimated balance at 31st March, 1906 ...	160	0	0
Estimated Income 1906-07 ...	1,250	0	0
Estimated Government Grant ...	1,540	0	3
Estimated total income 1906-07 ...	1,457	4	0
Estimated Expenditure ...			
Estimated balance credit 31st March 1907 ...	£82	16	3

NOTE.—If the Stallion is sold the allocation of £40 will be saved and the purchase money will be in hand. There is also £30 in the Savings Bank proceeds of sale of Shorthorn Bull—not taken into account in this statement.

In connection with the Estimates, Mr. Hirst, Local Instructor

for Upper Trelawny and Upper Clarendon, made application for an increase of his salary to £100, pointing out that when he took up the work at eight days per month, he understood that the other Instructors were on the same basis, but after that they were given £100 for four days per month. He also added that his districts were the most difficult to deal with on account of hilly unbroken bad country roads, scattered population in a part of the district and holdings far apart. The application was refused by five votes to four.

Motions re Chemist. Mr. Craig moved the following motions :—

“That in view of the recent announcement of the Government that this Society has no claim on the services of the Island Chemist—of the fact that the chemist has done no work for the Society—although the Society contributed to his salary in the belief that it had control over a part of his services—the Society calls upon the Government to refund the proportion of the salary paid by it, as well as £100—contributed by the Society towards the outfit of the Government Laboratory.”

“That as the Society has no Chemist, and cannot obtain the services of the Island Chemist without the express permission of the Governor—the Secretary be instructed to communicate with prominent Agricultural Chemists or Societies abroad with the view of ascertaining (for the use of members) their charges for the complete and partial analysis of water, soils, manures and feeding stuffs, and at same time to obtain instructions as to the drawing and transmission of samples.”

Both motions were carried unanimously. The Secretary was instructed to send the first to the Colonial Secretary.

Exhibitions. The Secretary read the following letters
Toronto & Halifax. from Messrs. Pickford & Black, Halifax :—

Halifax, N.S., 2nd November, 1905.

SIR,—In addition to the annual fair held in Toronto it is intended during 1906 to hold a Dominion Exhibition at Halifax, this latter is very largely assisted by the Dominion Government and is patronized by Manufacturers and others throughout the whole Dominion. This year it was held at Vancouver and was a great success, being an attraction which drew people from all over the Dominion as well as from the United States. As far as the Toronto Show is concerned it is always very largely attended, as some days as many as 90 to 100,000 people passing the gates. The dates at Toronto and Halifax have been arranged so that the former Exhibition will be closed in ample time to enable the exhibits to be removed to and shown at the Dominion Fair at Halifax, N.S.

It has occurred to us that this forms one of the very best means of putting the products and resources of the West Indies before the Canadian public, and with this end in view we are prepared to assist in every possible way. We now offer to carry all exhibits from West Indies to Toronto, thence to Halifax free of charge, we will also arrange for the necessary space and the proper showing of same. Exhibitors will thus only have to provide their exhibits and pay cost of erecting booths.

It would only be necessary to send bona fide samples of goods produced in the West Indies (not ladies' fancy work) but articles which would lead to the development of trade between two countries.

We do not know your feelings in regard to the success of the previous exhibits, but it is our opinion that nothing has ever before been done which so effectually brought the resources of the West Indies before the people of Canada. It is to be regretted that the exhibits stored on our premises after the exhibitions of 1904 were totally destroyed in the fire, as they formed the nucleus of a good show.

We would be pleased to hear from you as early as possible in regard to the above so that we can arrange space at both Toronto and Halifax and issue the necessary instructions regarding transportation.

The Shows will be held in August and September, definite dates to be advised later.

Yours very truly, PICKFORD & BLACK, per C. S. PICKFORD.

P.S.—We would like to have a supply of Coconut Palms, bunches of Coco-nuts, etc., which would be used to make the exhibit attractive.

Halifax, N.S., 24th November, 1905.

SIR.—Yours of the 14th inst. to hand and contents noted. The Toronto Exhibition opens about the 24th August, running for two weeks, and the Halifax Exhibition opens about September 24th, also running for two weeks.

The writer expects to be in Jamaica about the 10th of next month and will have pleasure in calling on you and discussing the matter.

Yours very truly, PICKFORD & BLACK, per C. S. PICKFORD.

As no funds were available for Exhibitions it was resolved not to take part in these Exhibitions at Toronto and Halifax.

Instructors and
Prize Holdings.

The Secretary read a memorandum with regard to the arrangements for Instructors and Prize Holdings as follows :—

I have given notice according to rule that the judging of the Holdings entered for competition for the prizes for the best kept Small Holdings in Clarendon, Portland, and St. Catherine is to take place as follows :—Clarendon, Monday, 5th February, to Friday, 23rd February. Portland, Thursday, 1st March, to Friday, 16th March. St. Catherine, Monday, 26th February, to Friday, 1st March. Mr. Cradwick and Mr. Hirst will judge Clarendon. Mr. Cradwick and Mr. Arnett will judge Portland. Owing to Mr. W. J. Thompson, Travelling Instructor, having had his three months leave of absence ending at Christmas, extended four months longer, this has altered the arrangements made for working up the Holdings in Portland in January by Mr. Arnett. It is proposed that Mr. Arnett should take Mr. Thompson's place at the Teachers' Agricultural Course to be held in Kingston in January, being paid extra from Mr. Thompson's lapsing half pay, and that Mr. Hirst should be transferred to St. Catherine for January to work up the Holdings Competition there, receiving extra remuneration and travelling expenses from Mr. Thompson's lapsing half pay and travelling allowance. I think this is the best arrangement that can be made, because although it takes Mr. Arnett from his other work in St. Ann, Trelawny and Portland it will bring him in contact with the teachers, some of whom are Secretaries of Branch Societies and who at any rate are always prominent in getting up meetings, and Mr. Hirst who is familiar with St. Catherine will be able to keep the work going there. I have not yet been able to make arrangements for the judging of the Holdings in St. Catherine. Failing getting any one else I may have to arrange to undertake it personally with Mr. Hirst.

JNO. BARCLAY, Sec.

Mr. Fawcett said that the part of these arrangements would have first to receive the sanction of the Governor before they could be carried through.

With this proviso, the report was adopted.

Secretary's Reports. The Secretary presented reports of his visits to different districts as follows :—

I beg to report that I attended a meeting of the Above Rocks Branch Society on 20th October. The weather was very showery, but there was a good attendance. I spoke on the prospects of trade with application to the capabilities of their particular localities. I particularly pointed out that any idea they had of limiting

their out-put of Jippi Jappa hats with the object of keeping up prices was very foolish and would lose money to themselves and to the Island. I pointed out the markets that were available for them and how very very small the output was compared to the present demand and the scope for this product. I visited a small factory which has been started, with generally about a dozen men, working more or less constantly. In reply also to enquiries I explained some of the provisions of the Prize Holdings Competition. I also visited the School Garden there and with some clumps of bananas as object lessons, explained the importance of timing bananas for the good season and how to do it.

JNO. BARCLAY, Sec.

On Monday, 20th November, on the invitation of the Christiana Branch I lectured on the subject of the Crystal Palace Exhibition and the experience to be derived from it. I pointed out how many openings there were for really good produce and how such organisations as local Agricultural Societies could undertake the work of improving the quality of local products. I also referred to the local potato industry, pointing out how they lost money not only to themselves but to the island in rushing their potatoes whenever they were dug in to the market, competing hard against each other instead of organising through their local Society to put in the market so much of their potatoes at one time as the market could take. They were terribly afraid of over production, but they actually only produced 500 barrels of potatoes in the whole of that district, which was as much as all the rest of the Island produced, and yet there were over 8,000 barrel of potatoes imported every year so that there was still plenty of room to work if they did so systematically. I recommended them to import their potatoes systematically through the Parent Society, and always be in good time in giving their orders so that they would be sure to secure good seed. It costs them a third to a half more to get seed potatoes individually. Some questions were asked especially as to the orange industry.

JNO. BARCLAY, Sec.

On the 23rd of November I attended a meeting of the Aberdeen Branch at Moore Town, in Portland, on the invitation of the Branch to re-organise the local society which had suffered through the loss of their funds by the Secretary and Treasurer who was the local Postmaster and who had been imprisoned for misappropriation of funds. I went through their books and noted as far as was possible the amount of their loss and pointed out that this had occurred through their not following their rules more strictly, which provided for periodical checking of the books, and for the lodgement of the funds in the Savings Bank. I advised them to begin over again, call a meeting, appoint office bearers and be sure to follow out carefully the rules governing their finances. I dealt with the products of their district which at present are limited to bananas, not much cocoa, even provisions not a very great extent, and advised them what sundry vegetable products and live stock they could keep to make money out of. Although the day was tremendously wet there was a good attendance from Moore Town itself, but of course people from the outlying districts were prevented from attending.

JNO. BARCLAY, Sec.

These were taken as read as they would be published in the "Journal."

Leave of Absence. An application by Mr. Palache for leave of absence from his duties as Instructor, for December, granted by the Deputy Chairman, pending confirmation by the Board, was confirmed.

Instructors' Reports. Reports of the Instructors for St. Ann, Lower Trelawny, Upper Clarendon and Upper Trelawny were submitted and as they had been published in the newspapers were taken as read and confirmed.

New Members

The following new members were elected:—

Messrs. R. H. Otto, Kingston; Cyril C. Henriques, 16 Orange Street, Kingston; Francisco Montealegre, San Jose, Costa Rica; W. J. LaLacheur, 58 Lombard Street, London; Alfred G. Harrison, Ensenda de Mora, Cuba; Wm. Cunningham, Nassau, Bahamas; S. S. Stedman, Woodstock, Buff Bay; A. E. Power, Constant Spring Hotel; G. A. Storer, Sagua la Grande, Cuba; A. W. Smith, c/o Messrs. Morris, Herman & Co., 68, William Street, New York.

The meeting adjourned till Wednesday, Jan. 17th, at 11.30 a.m.

THE OVER-STOCKING OF LANDS.

THERE is no greater fallacy in agriculture than the calculation that if we make so much out of 10 head of stock of any kind, we shall make proportionately more on 100 head of stock, or if we can carry so many head of stock on one acre we can carry proportionately more on 10 or 50 acres. This has been especially the stumbling block with people dabbling in poultry and attempting goat-rearing, businesses for which there has not been the available experience here that there has been with cattle and horses: which too, look very easy, yet in reality present as many difficult problems as the raising of larger stock.

The following article is a very wise one and we commend it to all interested in live stock:—"Some natural law in the animal world seems to regulate the number of individuals of any given species and preserve the balance between all. The matter is of interest in that it has a direct bearing on the rearing of domesticated animals in all parts of the country. If artificial means are taken to insure the survivals of all the individuals of any given variety of animal, some factor steps in and secures their ultimate extermination. Generally this factor takes the microscopic form of the ubiquitous bacterium, and all our science has hitherto failed to show us a means by which we can overcome this invisible enemy.

Land cannot carry continuously more than a definite number of the same class of stock. The practical experience of our forefathers long ago established the principle that the correct proportion of sheep on a mixed farm is one to the acre. In other words, one ewe to every acre of permanent pasture is the greatest number which the land can carry. On a hundred acre farm, divided equally into grass and arable, we will say that the owner keeps fifty ewes. For the greater part of the year these ewes live on the grass in the proportion of one to the acre. In autumn they may run on the stubbles for a few days at a time; and in the spring they will be folded on various portions of the arable with a run out on grass. They produce, say, seventy-five lambs in the early spring, which brings up the number of sheep which run on the grass all through the summer to 21 in the acre. In the autumn these lambs go on to the arable to be fattened on roots, and their existence no longer affects the grass land with which we are concerned. We thus see at the period of greatest growth land can support as many as 21 sheep to the acre for a succession of years without evil results. But even 21 sheep to the acre is not a sufficient head of stock to eat the

rapidly growing grass ; yet if a dozen or twenty more were added to the flock the land would not only fail to support the additional number, but it would become "sheep sick" for all. Over-stocking continued for a year or two would result in a perceptible falling-off in the health of the flock. The young animals are always the first to be affected by "sick" land, and a want of thriftiness among them is the first indication of too great a number of individuals. Old animals will often continue to exist on such unhealthy land for a number of years ; but it will be found impossible to rear their young, and the ewes will also become less prolific.

Yet land, be it ever so foul for one species of animal, will be most excellent pasturage for any other. "Sheep sick" land will often fatten bullocks and support horses most admirably, and will continue to do so, until it has been too continuously and heavily stocked with the new species. One of the greatest difficulties experienced by owners of large horse breeding studs is that of procuring land which is free from a horse "taint" upon which to rear their colts. Many breeders of thoroughbreds have found it necessary to have several farms or estates in different parts of the country to which stock is sent—so the difficulty is a real and not an imaginary one. Mixed farming, mixed stocking, is the only system upon which animals can be grown on the same land. It makes no difference whether one horse lives in solitude in a three acre field or whether it shares its pasturage with three sheep or a couple of bullocks. It will do equally well in either case—perhaps a trifle better with other stock than without—and all will thrive. But if an attempt is made to substitute the bullocks or sheep by other horses, the land will quickly become "horse sick," and the inmates of the paddock will fall victims to some complaint probably the result of bacteriological action.

The success which attends the crowding together of thousands of human beings within the confines of a few acres, as in our large cities, is solely due to the wonderful system of drainage which prevails. The waste products of all bodies seem to be virulently poisonous to the species which produce them, although non-injurious, nay, in some cases even beneficial, to others. If all waste is carefully removed, as it is in the cities, the members of a species can herd together with comparative impunity. If it cannot be removed disease at once sets in, as is illustrated by the outbreaks of enteric which always occur among bodies of troops encamped for any length of time upon the same ground.

It is the action of this law which in nature no doubt regulates to a great extent the balance among species, which makes small farming a profitable impossibility. The greatest number of head of poultry which one acre of land will support for an indefinite period is about twelve. From these enough chickens can be reared annually on the same ground to keep the head of stock stationary. If more than this is attempted the land will become tainted, enteritis will make its appearance, and the whole stock will be swept away. Now, a dozen fowls will not yield a sufficient profit to pay for their food and the rent of an acre of land. To pay the rent, food, labour, bills, etc., fifty or a hundred individuals must be kept on that acre—we

have never worked out the exact numbers necessary, but it far exceeds a dozen. Hence, as it is naturally impossible to keep such numbers in health on the given space, it is equally impossible to make poultry farming alone pay, as this class of stock can only be made profitable if kept in numbers which the land will not carry for more than one or two seasons.

Mixed farming is the only class which can be carried on successfully under natural conditions, and fertile land will carry the heaviest stockage which it can sustain provided the species are mixed in that proportion which our forefathers learnt from nature was the correct one.

(This will make plain to many who write us about mysterious deaths in their small stock, with every care exercised in feed, cleanliness and mating. Especially with poultry kept year after year in the same yard, no matter whether this is swept clean, and fresh gravel is spread regularly, is there great trouble. We have often repeated the advice that foul ground is the cause of the mortality, and that the only remedy is turning over the soil and burning it, or resting the place a season.—Ed.)

P O U L T R Y.

THE merits of different breeds of poultry, first as egg-producers, second as flesh-producers, and third for economy, *i.e.*, easiness of keeping, have always been burning questions in countries which have realised the importance of the poultry industry to their national economy. There are breeds peculiar to France, Germany and other European countries, but Great Britain and the United States have taken of the best everywhere and developed them into the breeds with which we are most familiar, therefore we have no need to go outside of these. British Colonies have also adopted these breeds to a large extent. Formerly when there were only a few breeds, very distinct in character, the question of what breed to keep for certain conditions was most important, but now-a-days when so many new breeds have been developed from these, possessing the characteristics of several breeds, breed is hardly so important, and the question of the fowl's individuality is of more importance. Therefore we see now advertisements of so and so's strain of such and such breed, or so and so's 200 egg strain. The question of breed at the present day is therefore more to be considered in connection with local conditions of climate and soil and markets. For instance, some breeds do not stand wet weather so well as others; some breeds luxuriate in sunshine and are most susceptible to cold, while others are quite hardy against cold. Then again some markets call for brown eggs and some for white eggs, but we have not got that length yet here. But all these questions have to be considered now-a-days when anyone thinks to take up poultry-rearing seriously as a business, and are apart from any personal predilection for a certain colour of feather. People may have fads for certain colours, but we in Jamaica must only look to business and treat colour of

feather as a matter of business. Then if one is selling for market where eggs are sold by number and nothing extra is given for large eggs, one would use a Leghorn in preference to a Minorca, but if for one's table, or if the market would buy by weight or pay extra for large eggs, then one might prefer Minorcas if they stood our particular climate equally well. If it was a wet climate with sticky clayey soil we would, however, find that Leghorns suited such conditions a great deal better than Minorcas. In Jamaica, particularly in the lowlands, we should prefer Black Orpingtons to Buff Orpingtons because of the colour, although taking all other qualifications into account, there is little to choose between them as breeds. The Buffs are more showy and may be a little better table fowls than the Blacks; the Blacks colour, however, stands the sun better, and they are slightly better layers than the Buffs, and also a little hardier. The Plymouth Rock colour which is nearly black and grey, stands our conditions well, and the breed is very hardy. So does the red of the Brown Leghorn, and the dark colour of the Indian Game. Wyandottes have come much to the front of late as a good all round breed, but somehow have never caught on here. The few experiences of those we know have not proved so satisfactory as appear to have resulted in other countries.

In taking up a breed therefore one should consider all the different points raised. It will be found very much the same with fowls as with cattle-rearing, perhaps more so, that better results for *ordinary market purposes here* result from cross breeds than from keeping a flock of pure-breds. Therefore, we are more confirmed now in opinions we have formed here during these last eight or nine years that the following methods in poultry-rearing will suit ordinary people best. Pick the best of the fowls that you may have on hand, but if there is any disease among them at all, kill them all off and start quite afresh. If six selected fowls run to the small side, then make up your mind to buy a thick, compact cock of one of the larger breeds, Plymouth Rock, Orpington or Indian Game. Do not be carried away by a desire for a gigantic bird; you want thickness more than long legs and a long neck. Use this cock for one year, trying to rear from 25 to 50 chickens according to your space and feed available and as your surroundings will allow. Eat or sell all the roosters when they are four to five months old, and also sell or eat at about the same age or say five to six months old, all the pullets that are not pleasing in shape, keeping say 10 to 20 of the best shaped. When these lay, select the best layers and only set the eggs from these. At the end of the season the cock that was used the year before should be sold, as also the old hens you started with; a good rooster will probably realise nearly as much as what you paid for him, perhaps more, if he has improved. Your new stock of fowls would now be of good size and weight, and if you are in a dry climate you could now use a Black Minorca cock, if in a wet climate a Leghorn cock, and so improve the laying qualities of the next generation. From the next year's chickens you would also select the best layers for breeding from, and in the third year go back and use the same kind of rooster as the first year. The crossing of distinct breeds, so long as you find that the results of the cross are

satisfactory and fulfil your purposes, always tend to hardness, while the mixture of large breeds, a laying and a non-sitting breed, so long as your hens are well fed and are given reasonable attention, will result in good-laying hens of a good size. The size is wanted because you have to use or sell the roosters and old hens for the table, and of course good layers are wanted also. No hens should be kept after the second season, unless there is a reasonable layer among them, and she may be kept for several seasons for setting her eggs. It is these old hens that stop laying early in September, and do not begin to lay again until January. Pullets hatched in February and March will begin to lay in September if they have been well fed.

* * *

HATCHING.—With January comes the hatching season and everybody with foresight should begin setting hens in this month, especially those who keep the larger breeds like Plymouth Rocks, Orpingtons, Langshans. February and March is still good time for those who keep Minorcas and Leghorns. Where there are mixed breeds, hatching should be done right along from the middle of January till the end of March. Often people set eggs and are disappointed at the poor hatches they get, and there are a good many reasons why eggs do not hatch, 1, there may be too many hens kept to one rooster, 2, the eggs may be too old, 3, hens may be too fat and consequently there is a lack of vitality in the eggs, 4, the nest may be badly made so that the eggs roll about, or the hen may have more eggs than she can cover, so that some get chilled, 5, the hen in the nest may be swarming with lice when she will leave the nest for long intervals and sometimes forsake it altogether. When eggs are received from a distance they should not be set immediately, but should be put upright for 12 hours and then set below the hen in the evening. One of the advantages of keeping poultry is that cheap or otherwise waste land will answer for them, while cows and horses require land that carries good pasture. The poorest sandy soil is suitable for fowls, not only because the land provide grass for them, but because on such lands, cholera, roup and other diseases seldom appear, and such lands are always rich in insect life, especially in grass-hoppers which they feed upon. The rich land abounding in humus is usually wet and is the kind of land on which disease flourishes best. Dry districts and light soils are better than wet districts and heavy lands for fowls and turkeys.

THE basis of any system of farming that will procure a high productive capacity of the soil is thorough preparation of the land *before planting* by forking or ploughing, drainage, and whenever necessary, application of lime to correct and prevent any soil acidity. Basic slag is the best of all fertilizers to be used for the latter purpose, as it contains a large proportion of lime as well as the phosphates which make it so valuable, and it has been found suitable for Jamaica soils. Burnt lime is not absolutely necessary here, the fine white marl so common in Jamaica is quite suitable.

AGRICULTURAL CO-OPERATION.

DENMARK is an example of what co-operation in agriculture has done in an uncongenial climate with a poor soil, and, 20 years ago, a very limited trade mostly done with neighbouring countries on the Continent. It has through the co-operation of its farmers, urged on and fostered by the Government, cut out all other countries in the butter, egg and bacon trade with Great Britain, and has entirely beaten Ireland which formerly held the bacon trade and is so much closer to the great market. "Much of the recent success of Danish agriculture is due to co-operation. There is not a branch of agriculture it has not touched, and there is not a branch it has not touched that has not grown. The total exports of Denmark proper in 1903 amounted to nearly £20,000,000, and of this, 57 per cent. came from co-operative societies. Taking first the creameries, it is shown that the first co-operative creamery was started in Jutland in 1882. From £1,200 to £1,500 is required to start a creamery, but no share capital is subscribed. The banks or loan companies advance all the money, the members, however, pledging themselves to dispose of all their milk through the creamery, and be responsible, jointly and severally, for all its liabilities. In 1903 there were 1,057 co-operative creameries in all, with a membership of 150,000, handling milk weighing 42,500,000 cwt., drawn from 750,000 cows, more than two-thirds of all the cows in Denmark. The pig-rearing and bacon-curing industry may said to be the result of the development of dairying, pigs being reared to get rid of the refuse of the dairy profitably, and when the live market was closed against them the farmers started co-operative slaughter-houses and bacon-curing factories all over the country. In the same way the egg industry was co-operatively taken up, and in 1903 there were exported eggs to the value of £436,000.

Stock of all kinds have their fostering societies. There are co-operative societies for almost everything—for the improvement of the breed of horses, cattle, pigs, and poultry, and for the insurance of live stock. There are four co-operative societies for the insurance of stallions alone, and more than a dozen for the insurance of live stock generally, all working on the principle that the members are jointly and severally liable for all losses by accident or death. There are sixty bee-keepers' societies, with a membership of 5,000. There are societies for the purchase and distribution of seeds, manures, and agricultural machinery. And all these societies are managed by separate bodies, though oftentimes composed of the same men, with a result that a farmer may be a member of half a dozen or more. But they have a working arrangement by which the debts due by a farmer to one society may be paid by a balance standing at his credit in another. This kind of settlement,

however does not seem to be much resorted to. The societies pay cash, or arrange monthly statements, and the farmer, as a rule, pays cash.

The notes on the stock further bring out the careful mating that is followed and the scientific feeding, all having for their object the improvement of milk production. The Danish farmer breeds for milk ; his idea of pedigree is utility and profit. This he measures daily, and anything found wanting is speedily discarded. Bulls that prove getters of profitable progeny are not disposed of after two or three years' service. They are not only retained till they see the good old age of twelve or fifteen years ; but a bull that has proved his excellence is carefully reserved for mating with the most profitable cows. This policy in breeding and selection, pursued with remarkable perseverance in Denmark, has been crowned with great success. Average yields of 800 gallons of milk are quite common, while a scrutiny of the carefully kept records seldom discloses a cow the milk of which falls below our 3 per cent. standard of butter fat. Indeed, many have a record of over 4 per cent., and the Danish farmer counts on getting a pound of butter from $2\frac{1}{2}$ gallons of milk."

PEOPLE'S CO-OPERATIVE BANKS

THE slow progress of this movement in England is said by the Secretary of the Urban Co-operative Banks Association, England, to be due to causes that could be overcome by persistent propaganda. The economic and other beneficial results of the co-operation were well known, and these banks represented the application of the principle to the science of finance. He says that investigation of the work of these banks in Germany and Italy leaves the impression that the net result has been to lessen usury, to stimulate productivity, to demonstrate honesty as an economic asset and to improve trade. More than 20 People's Co-operative Banks have been established in England, and over 200 in Ireland, a small result which would be improved by a more earnest study of the subject by our working people, and their leaders. In organising such banks it is essential that only persons of good character should be admitted to membership, and that knowledge of character might be readily ascertained, districts should be limited.

MILK AND INFANT MORTALITY.

THE milk trade in Jamaica is growing in all towns, especially in Kingston, and the consumption is increasing rapidly, and is increasing, not because of any rapid growth in the population, but simply because dairymen are providing a more regular supply of better milk. When we say better, we are not referring to its rich-

ness, but simply to its better keeping qualities. Not so long ago the milk went readily bad and often smelled badly a very short time after having been received. It had either to be consumed almost right away or boiled, and in that form kept over. Now at least fresh milk keeps longer and has a natural odour. Its bad keeping qualities and its evil odour arose,—to put it mildly,—from the unhygienic conditions under which the milking of the cows was performed. Still there is room for more improvement indeed. While some dairies, especially city dairies, are kept in the best possible condition, much milk is sent into Kingston and other towns which is milked under conditions which are prejudicial to the health of the consumers. There is no single article of diet which so concerns the health of the community as milk, and more so because it is so much used in feeding children. The following article from the "Creamery Journal" entitled, "The Cry of the Children," but which we head "Milk and Infant Mortality," applies as much, if not more to Jamaica as to the United Kingdom, as there is certainly much stricter supervision kept up in dairies there than what there is here.

THE fact that infantile mortality seems to increase instead of decreasing in our populous centres has undoubtedly some understandable cause, and it is surely right that it should be investigated. Medical officers of health everywhere attribute so many deaths in children under one year old to the absence of maternal nourishment and the substitution of either cow's milk in the natural state or in the condensed form. Both are bad, inasmuch as it is declared that the bulk of the milk supplied in our great towns is impure to commence with, and deteriorates rapidly as it reaches its destination.

The whole problem is a very serious one, as it certainly affects the future of the nation. If the thousands of infant lives which are lost annually through improper understanding of Nature's requirements could be saved, it surely would add strength and greatness to the nation. This, therefore, is a question before which any other political discussion of the hour is merely a circumstance.

The children of the poor—and, for that matter, of the rich, too—are being done to death daily through sheer want of knowledge. Mothers do not feed their own children nowadays, but proceed to pour into them what must be acknowledged to be in many cases poison; for it is unquestionably correct that many dairy farmers, while observing ordinary cleanliness in their byres, do not cool the milk as it is drawn from the cow. The result is that degeneration takes place long before the milk reaches the consumer. If the milk happens to be contaminated with any pathogenic germs, it is simply a medium of death to thousands of children.

Now, we have constantly urged that it is essential that milk should be drawn from the cow in a cleanly way and in healthy surroundings, but we would further state that it is absolutely essential that milk on the farm should be cooled as soon as possible after

being drawn, and, if shipped to a town at some distance, should be pasteurised to at least 140deg. Fahr. before being used to customers.

The demand, however, in the future is not likely to be confined to milk of this sort. So far as we can gather, in many towns visited, there is a demand for sterilised milk in bottles, which looks like swamping the old-fashioned methods of the milk-seller, so that pasteurising even may be said to be unequal to the requirements of the trade.

(Refer to article on Sterilising Milk by E. M. Earle, page 331, Journal for 1902.—Ed.)

C O C O A.

SINCE he has been stationed in the west-end of the Island, Mr. Cradwick, Travelling Instructor, has called particular attention to the fine growth of the Criollo variety of cocoa trees in Hanover, Westmoreland and St. James, and there has been considerable correspondence at this office on the subject as to whether it would be advisable to plant this variety in other parishes, St. Thomas, Portland, St. Mary and St. Catherine, for instance.

Some articles on the subject have appeared both in this Journal and the Bulletin.

Many well known and successful cocoa planters oppose the planting of Criollo Cocoa, looking into the ancient history of the variety and the fact that it has had to be replaced in the West Indies, in Central and South America and in Ceylon largely by the presumably more robust variety Forastero, and also particularly in Grenada, by the unquestionably hardier Calabacillo. Nobody questions the fact that Criollo cocoa when put in the market fetches a much larger price than other varieties, but it is argued that this is more than compensated for by the larger yields of Forastero and Calabacillo, and the case of Grenada is quoted which grows more trees to the acre of Calabacillo, and so, getting a larger yield, makes as much profit per acre as Trinidad with the better variety Forastero.

So far as Jamaica is concerned, after due consideration of the subject and a good deal of observation of the different varieties growing together, we think the matter solves itself in a very simple way. In the west-end of the island Criollo Cocoa undoubtedly thrives to perfection, and there is 'practically only that variety there, but then there are no large plantations to have had its suitability to ordinary estates conditions tested. It looks there to be a case of the survival of the fittest, from old times when it was the one variety here. In that case, however, the trees are now necessarily hardy, and the seeds full of vitality. We are of opinion, therefore, that plantations can be safely set out with Criollo in any locality where it is the most common cocoa and is found growing vigorously. We would go further and say that in the west-end a planter possessing good soil and a regular rainfall who would set out any other variety would be short-sighted. On the other hand we

think that the planters in St. Mary, St. Thomas, St. Catherine and Portland would be just as short-sighted to intrude the Criollo on the varieties common in their district, except they were possessed of the very choicest soils and were prepared to give up a substantial portion of it entirely to the Criollo variety, say not less than five acres, and could risk this as an experiment. But the ordinary planter who has some acres already stick to the Forastero and hybrids if he has these at present.

With so much cultural information and entomological data now available as to the troubles and diseases that attack cocoa trees, and knowing that the Forastero variety has been subject in Ceylon and elsewhere to the same troubles as the Criollo has been subject to, there is not, we think, the great fear, as is sometimes imagined, of a general epidemic of disease attacking the Criollo any more than the others. And as to the effects of the hurricane on them, although observation after the 1903 hurricane proved that the Forastero and Hybrids with their more spreading habit suffered less and recovered more rapidly than the Criollo trees, we must expect that the higher priced and more select variety of any product should require more care than, and necessarily entail some increased risk over the more common varieties.

SHIPPING MANGOES.

It may interest your readers and shippers of fruit to know, that it is necessary in exporting mangoes, to select only the best varieties, East Indian preferably. It is also important that the fruit should be picked in *full* condition, as that picked too green never ripens. Every mango should have at least one inch of stem left on as this prevents bleeding. Care should be taken in packing to allow a separate division to each mango, and it is *useless* to ship mangoes after July. I have shipped hundreds of cases during the past two years, in most instances the fruit has arrived in good condition, and there is a growing demand for it in the English markets. There is little doubt that shippers could command better prices if they would personally superintend the packing of fruit and determine to ship only the best, and if this is done there is a great future in the fruit industry of this Island.

ASTON W. GARDNER.

Tangley, Kingston.

HOW TO CURE LEMONS.

THE lemon tree here is a rank grower, and if well cultivated, some fruit can be found on the trees all the year through, but ordinary trees give two crops in one year, one in the summer,—June, July and August, and the second and the largest at the same time as oranges come in, from November to February. But, as we

wrote in last issue, our lemons are not wanted in the world's market in the winter time, but they are wanted from April to September. and as lemon trees are more easily manipulated than orange trees, they can be made to bear their principal crop when wanted. This is done by not allowing them to bear in the winter. Blossoming in the summer here should be discouraged for that means fruit in the winter. The fruit set then should be clipped off so as to encourage blossoms to come later on, from October on to February. Lemons are not allowed to ripen on the tree, but are stem-cut just before they begin to show yellow. They are not then simply cured a little and packed in boxes like oranges. The lemons should be piled or heaped on the floor in a dark close room and covered with blankets for 48 hours ; they should then be in a profuse sweat and should be wiped dry and put on shelves in single layers in a dark room and kept for a week or ten days until they begin to show a clear, straw colour. They should then be sized carefully and packed like oranges in boxes. The grading into sizes should be very carefully done as they are sold by size. Lemons so prepared for market will keep for months in a perfect condition. and there is no trouble about their going bad in the way oranges do. We have a splendid market for lemons in the summer time, but practically none in the winter, and those who happen to have many trees should follow the above hints and make profit.

COFFEE.

COFFEE has been a declining industry in this country for a great many years, largely owing to the depreciated prices ruling in the markets of the world. But I am sorry to say also that I have noticed for the last few years, and year after year, a deterioration in the quality of the crops produced in Jamaica, which brings our coffee down to a much lower level of prices. It is a fatal error that our settlers fall into, to abandon a cultivation the moment prices fall. Coffee fields have been neglected and the general product has deteriorated in consequence. This fact cannot be too strongly impressed upon the minds of all engaged in the cultivation of any product, viz : —that the very best sample of the particular product is always worth a high price, and it is a curious fact that such product if it is the very best of its kind is not subject to the same fluctuations of the market as the ordinary article of the same quality. It should be instilled in the minds of coffee growers that the abandonment of the cultivation of coffee—either total abandonment or such abandonment as is caused by neglectful cultivation—is a mistaken policy, and that if they only kept up the production of the fields and prepare the produce for the market in such a way that it would be the best of its kind, the swing of the pendulum would bring better prices. In any case it cannot be economical, nor can it be worth while abandoning acreages of coffee cultivation

simply because the price is not so good now as it was years ago. What small settlers have to do is to cultivate their small acreages on better and much improved methods, making the small acreage produce twice the yield it formerly produced as could easily be done, and they would also in this way get a much better product.

C. E. deMERCADO, in "Gleaner" 'Xmas. No.

PRICES FOR COFFEE

A valued correspondent writes as follows :— "In the November 'Journal' you publish a list of prices under the title of 'The Trade Pendulum.' I see 'coffee' quoted there for 1905 at 28s. to 33s. and so on. I think that in fairness to the poor old Island that you should have added a foot-note to the effect that these are the prices paid here. Further, that the coffee prices are for small settlers coffee. To quote Jamaica coffee without any qualification as 28s. to 33s., when some of the best marks fetch six to seven pounds is unnecessarily belittling one of our first industries."

(The article dealt with what actually passed through merchants hands here, and the bulk of our coffee is alas! just as stated in the article. For the year ending 31st March, 1904, we exported 80,061 hundred weights of coffee valued at £112,085, which is exactly 28s. per cwt. We all know that estates' coffee is a different product and ranges from about 50s. to 135s. per cwt. Our correspondent's letter emphasises the difference between the pains taken by the intelligent and careful large growers and the slipshod ways of most small settlers.

COFFEE PULPERS.

THERE are a good many native carpenters who now make efficient pulpers on very reasonable terms. For want of a good pulper much good coffee is damaged in Jamaica, and small growers should strive to combine to get one. Here is an experience we asked for :—"In the matter of coffee pulper I consider it the best investment I have made for a long while, and I have no trouble in curing. I have several barrels of fine parchment housed after a few days. I am going in largely again for the cultivation of this product on my fine mountain property, 'Castle Eden.' The trouble of properly curing the article was for several years my difficulty, and when the low price came it did not pay me to keep up to any extent my cultivation of coffee. Now I have no trouble under the pulper system, and I am rapidly cleaning the old coffee works and planting new fields. I am encouraging the people to do the same, and in a short time coffee will become again quite an important product in Trelawny and the Dry Harbour Mountains. I am thankful I took Mr. Hirst's advice and purchased the pulper.

Woodlands, Stewart Town.

(Revd.) W. M. WEBB.

F A R M I N G.

IN Scotland farmers have a saying that the basis of good farming is dung,—and it is through animal manure and good tillage that lands there that have been cultivated for hundreds of years are now producing larger crops than at any time in their history. They are producing the best average returns in the world ; better returns than farmers get on fresher lands in the United States and Canada, where they have depended more on their good soils and less on good farming. In all the foremost European countries,—the United Kingdom, France, Germany, Holland and Denmark, for instance,—farmers are enabled to produce good crops in competition with the fresher lands in the New World, through careful systems of farming, by which one branch of farm work welds into another, and one of the chief considerations is the making of as much manure as possible, and the careful saving of it under shelter to prevent its virtues from being washed out by rain. Large quantities are added to the land, as much as 10, 15, and 20 tons per acre, so that the fertility of the soil is not only kept up, but continually increased. In Jamaica we have not yet been farmers. Planters is a very good term, but we ought to be farmers in the true sense. We have not had any regular well-defined system of mixed farming as yet. Long ago when Jamaica was first settled, the lands around the coast were first taken up for cultivation, and the first crop that was produced on a great scale was sugar-cane, and there are lands that have never been out of sugar-cane from then till now, over 100 years at any rate. It must have been very good land at first, but no land can stand the continual taking off of annual crops indefinitely, and so all these sugar lands would have been thrown up and other lands further inland taken up for sugar if there had been suitable lands. But there were no large stretches of level land anywhere except near the coast, except occasional odd corners in alluvial valleys; and so arose the problem of keeping up the fertility of these lands. Sugar planters mindful of the practices at home, for most of them in the early days came from the United Kingdom, began to work their business so that they could make and save manure, and they have carried on these practices ever since, with the result that lands under sugar-cane at this day are giving greater returns than ever in their history. This is the case in Vere for instance. Sugar planters take pains to make manure, they often grow grass especially for that. They pen cattle and they cut the grass and weeds along the intervals of the estates, to put in these pens, (besides the good guinea-grass and para grass and cane-tops for feed), to be trampled down and mixed with the droppings and urine of the cattle, so they are enabled to apply large quantities to the cane lands when they are planting the cane-tops and on old ratooning pieces to, and whenever a root gives out it is replanted with the addition of several baskets of manure.

Now we hear from small settlers a great deal about lands giving out,—being worked out, or not growing good crops. Lands have now been worked in from the coast from both sides of the Island until those working from the north have met those working from the south, in the centre. The virgin forest with its rich, easily worked soil, yielding large returns of fine crops with little trouble is practically all gone. If this virgin forest had given place to staple crops such as oranges and pimento, coffee and cocoa, the Island would have been very wealthy by now, but it gave place to the cultivation of annuals only, yams, cocoas and ginger principally. We hear now from both sides, *i.e.*, here where ginger is grown and in the countries where it is marketed, of low prices for ginger, and this has not altogether been the case of the supply being over the demand; it was much the case of the Jamaica Ginger not being of the same quality and strength as it formerly was, because it is not now being raised on the same rich lands. We hear now also complaints of the small size of our coffee beans. Some of our coffee, for instance, is being sent to Australia; they like a large bean there, and ours they complain is getting smaller and smaller, and so we shall either get a small and smaller price or we shall lose the market altogether. Small settlers complain of lack of market and of small prices, but instead of blaming themselves who are alone responsible, they blame some indefinite something. Perhaps the Government, perhaps Providence—never themselves. We have told them at meetings and we tell them here, that reduced prices for standard products are the rule all over the world, that keen competition is the rule, that we have more competition for the products we raise than we formerly had, that new countries with virgin lands are continually being opened up, and it is a case of the survival of the fittest, which will be those who grow the products which please customers best. But we also say Jamaica is better situated in its nearness to the consuming markets, in having its ports of shipment near to the place of growing, in having abundance of cheap ocean transport with many lines of steamers competing for freight, in having better roads than any of our competitors in tropical products; and so with hard work, the use of brains, attention to business, with carefulness, economy, and system in working, then there is hardly a product that would not pay now. All those thrown up coffee pieces that are so common throughout the island, even in the districts best suited for coffee-growing would give just as large returns per acre as is being made on any acre now in the world, if the land was cleaned of weeds at short intervals, if the trees were regularly pruned, if manure from all the numerous sources about a holding was carefully saved and applied,—from the stabled horse, from the pig pen, from the yard and so on. There is hardly a small settler we have met who has talked of low prices whom we have not been able to show that we have at least as good markets as any country that grows coffee or cocoa or bananas or ginger or sugar; that we are nearer to these markets; that we have a stable government; that

life and property are respected and protected ; that if some of our soils are not now so rich as those of the newly opened up countries of Central and South America, we are already further advanced than they in agricultural instructions. So like the farmers in Europe, what we require to do is to seize every opportunity of gaining more knowledge about our work, our profession in life—which is agriculture—and put that knowledge into steady practice. No one need have any hesitation in writing us for information, and if we cannot answer every question ourselves we have the help and co-operation of many good agriculturists who will be able to give us the information wanted.

No doubt there are difficulties in the way of success in Jamaica and there are drawbacks in the life of the community. As far as I can see they are fairly well balanced by other difficulties and other drawbacks in other countries. I do not wish to make light of either individual difficulties or such as are of a general character. My advice to Jamaica people is let us make the best of things as they are in our individual life and circumstances and in our public affairs, let us bear with the conditions and battle with our difficulties bravely. We shall be happier even if we are not more prosperous. Making the best of things in this sense is the sure way to make the things themselves better. I know some people who have been taking this course and who have found it succeed. They have had hard times and difficult struggles and they are now getting on well. The fact is that the same energy, industry, frugality, which are needful for the young farmers in Canada, will in as a large proportion of cases, bring success to the young planters in Jamaica.—His Grace the Archbishop in the "Gleaner" 'Xmas. No.

MANURE.

ANIMAL manure or farm-yard manure or pen manure, or whatever its name may be in different countries, that is, waste vegetable matter mixed with the droppings and urine of animals, is a complete and also a very complex manure. In this lies its superiority over artificial compounds. No crop can exhaust it of its fertilising properties in a single season, for its effects, as is well known, are spread over a number of years. It has been estimated that half of its value is obtained the first year after application, a fourth the second year, an eighth the third, and the residue completed over quite a number of years. So that we can see how if annual applications are given, the soil accumulates fertility. From the results of the experiment in mulching cocoa in Dominica recorded in last Journal, when the fertilising effects of the mulch did not take effect for the first three years, but thereafter gave better results than applications of artificial fertilizers, we can understand that if a surface application of simple vegetable matter is so good, the application of vegetable matter together with the rich animal manure incorporated with it, would be quicker and more effective in results.

THOROUGH-BRED AND PURE-BRED.

A correspondent has amused himself at our expense because of our use of the word pure-bred when speaking of animals, instead of the incorrect term "thorough-bred." He writes as follows :—
 "With regard to *pure-bred* Poland China pigs, these cannot possibly exist except in the sense that all pigs, which have not been crossed with alligators or some other breed of feathered fowls, are pure-bred. All pigs and all horses are pure-bred pigs or horses. If you cross an animal of the genus *Hippos*, with one of the genus *Asinus*, the animals so crossed will still remain pure-bred, but the progeny is not pure, but cross-bred and usually defined as a mule, from the Latin *mulus* a mixture, original derivation probably ancient, *lansceit, et mul*, to grind, the animals being used in ancient times to turn mills. The term thorough-bred or clean-bred is used to define an animal which has been bred along certain lines sufficiently long to impress on the strain or variety certain characteristics supposed to be desirable in such strain or variety. When this has been done for a sufficient length of time to practically guarantee that the strain or type will not frequently revert to one or other of the strains or types used to build up a particular strain or type, that strain or type is then termed thorough-bred, but can by no stretch of imagination be termed pure."

We replied as follows :—"The law as to terms applicable to stock is laid down by use and want in the fountain-head of stock-rearing countries, Great Britain. We cannot have a thorough-bred Hackney or a thorough-bred Clydesdale, because the term "Thorough-bred" is already appropriated for a specific breed of horses. We can speak of a man being a pure Norwegian, or a pure German, or a pure Scot, and we can speak of an animal as a pure Poland China pig or a pure Berkshire, meaning that its lineage is pure, *i.e.*, pure-bred, bred with its own kind only, not crossed. To speak of a thorough-bred pig is as inapplicable as to speak of a Hackney Pig or a Shorthorn Pig. The mistake of using the word thorough-bred in the wrong place is often made in the United States ; it is seldom made in Great Britain.

In the Journal for February 1904, we wrote on the same subject. And after having written the above found a paragraph in that useful paper, "The New York Tribune Farmer" bearing us out. It is as follows: "Apropos of a recent controversy in those columns in reference to the proper terms to use in referring to registered or pedigreed livestock of the various kinds, a valued foreign farm journal has this to say in reference to the careless use of terms too commonly practised by Americans, terms which are altogether meaningless : 'Raise thorough-bred hens,' says an American exchange. They would be a great freak, no doubt, if they could produce them

but in our country horses won't mate with poultry. We have pure-bred, cross-bred, and grade flocks of fowl. The thorough-bred doesn't flourish in this country.' We Americans seem to have a world-wide record for a lax use of language, but of all words that are utterly meaningless in a strict sense the word "thorough-bred," as ordinarily used is in the front rank; for there can be no such thing as thorough-bred cattle, sheep, swine, or poultry, the word being properly used only when applied to the English racehorse. Yet in every farm paper within my knowledge, "The Tribune Farmer" excepted, thorough-bred cattle, sheep, swine and poultry are advertised; yes, and thorough-bred dogs. Occasionally we see prize lists of fair associations which offer prizes for thorough-bred livestock of all kinds. And even at farmers' institutes, where things are supposed to be done in proper form, I have heard speakers refer to thorough-bred livestock of all the various classes. Let's learn to call things by their right names."

B E E S.

It is, with bees the same as with any other kind of live stock. It is possible to overstock the land. Bees must have a certain amount of pasturage and the blossoms of plants from the pasture. Therefore it is not possible for them to find sufficient nectar to feed themselves and store honey in their hives when there are too many of them close together. Those who keep stock know how seasons fluctuate, and how some years pastures are bare compared to others. It is the same in bee-keeping. There are average years, there are years when there is a superabundance of blossoms, and years when plants do not bloom readily or blossoms do not last long. Thus it is with bees as with any other stock, no one should think that he can depend for his living on bee-keeping alone. It is not advisable here any more than in other places. Bee-keeping is an excellent side issue, and fits in well in the operations of a careful man who has other crops besides the honey crop to depend upon or other stock besides bees. This is not to say that a few may not be successful in bee-keeping on a very large scale and depend upon it, but in that case they must be careful, experienced and enthusiastic, and good business men besides.

THE ORANGE INDUSTRY.

PIGS IN ORANGE GROVES.—In English apple orchards sheep have been found to be most valuable to turn in, in the autumn. They do not harm the trees, but they keep down all the weeds and grass, and eat up the fallen apples which would breed grubs, while at the same time they add greatly to the fertility of the soil. It is found in England that a flock of sheep is better in an orchard than a ton

of poisons and several kinds of spraying machines ; and it will be found in Jamaica, as it has been found wherever tried, that a herd of young pigs turned in among the orange trees at this period of the year, will most effectively clear the soil of all grubs which may do harm to the roots of the trees, while their routing acts as tillage to the soil. Of course this routing leaves the orange grove untidy looking, but this can be easily remedied a little before the blooming season comes, by sending a man round to level the soil, which will come cheaper than sending him round to hoe and fork and lime, and use bi-sulphide of carbon against the attacks of the Fiddler grub. Of course it is not always practical to let pigs run free, as they may get into other cultivations and do damage, but in that case they can be used in small moveable pens shifted along every day, two young pigs in each. The routing of the pigs does very little harm through the breaking of the roots, far less than the usual kind of forking does.

FORKING.—The fact is a great deal of harm has been done, and is being done to orange trees by indiscriminate forking. If the soil is baked and has to be loosened, weeding will usually do this thoroughly, and forking should only be done deeply round the outer circle of the tree, and if the roots are found numerous, there then the forking should be done further out simply to prepare the ground for the extension of fresh roots. Only the crust of earth requires to be broken close in, and if a mulch had been used there would have been no baking, but the forking we have seen done and we still see being done, is absolutely ruinous to the trees. If done close to the stem, roots are torn up and broken ; some are left lying broken on the surface and get dried up, others are broken below, rot sets in at the broken ends, the Fiddler grub attacks them and the tree begins to look as if it would die. The Fiddler grub is then blamed, but as it seldom, if ever, attacks sound trees that have never been cultivated or had their roots disturbed, it is some proof that it does not attack healthy roots. The poor appearance of trees that have been so cultivated is again used as an argument against all cultivation. Young trees require the soil to be kept soft around them to allow easy extension of roots, but if the soil is well prepared before planting, no more digging need be done where these roots are, the cultivation being confined to hoeing lightly on the surface, keeping an inch or two of soil loose there, and in dry weather mulching with grass or trash. Established trees only require the necks to be kept strictly clear of weeds and grass, and the radius beneath their branches, so that grass and weeds will not grow up and interfere with the circulation of air. Otherwise they are often better in a good close cropped sod, and horses and sheep may be safely pastured among them, but not cattle. In humid districts this practice is especially necessary for success in securing good carrying fruit. That clean and deep cultivation right through will not suit the trees in established orange groves here is our growing

opinion, but we should like to have the matter discussed by others who have made observations and noted results.

EARLY ORANGES.—In our orange industry, it is going to be a case of the survival of the most careful, as we apparently cannot compete with Mediterranean Oranges in Europe or Florida, and Californian Oranges in the United States, whenever these fruits come into competition with ours, which does not say much for us, when we remember that November is when our oranges are beginning to be at their best, and those of our competitors are probably at their worst, because it is their very earliest fruit; and as there is a demand for oranges during September and October, during which months there are hardly any in the market from other countries, it should be our concern to produce as many oranges in these months as possible. That orange trees can be influenced to produce earlier, larger, and firmer fruit we have no doubt, and our climatic and other conditions allow of it being done here regularly. Where there are orange groves this may be comparatively easily and inexpensively done, but as most of our oranges are from pasture-grown trees, growing practically wild, it is not so easy or so inexpensive to deal effectually with these, but still a lot can be done. In orange groves, all fruit that is too small to be marketed, should be cleared off the trees systematically as early as possible, certainly not later than December; and indeed these trees which already show an early habit, should be entirely cleared of all late fruit by the 30th of November; those showing a very late habit, *i.e.*, having fruit coming in very late, not being fit to ship until December or later, may be encouraged to fruit as late as possible, as there is generally a limited market in February and March again. Whenever the weather becomes dry enough, say at the end of December or beginning of January at least, the weeds should be cleaned out right through, and a mulching of these and additional dry grass, if necessary, put round the trees. All water sprouts, dry branches and twigs, should then be cut off, and this is about the only pruning that evergreen trees require to have. If this is done every year the trees will be encouraged to fruit early, and the rotting of the mulches will form good manure in a natural form, better than coarse, heating stable manure, which is not a good form of manure at all for orange trees, although old rotten cattle manure is good if available. But the grass will do. This will assist the formation of large fruit. When the young fruit appears, and if it clusters too thickly, a good many could be pinched, or cut off when they are the size of marbles. As a rule oranges do not set very thickly, but it is the habit of the grapefruit to form huge clusters of fruit which not only hinder each other's growth, but form unsightly marks where they rub against each other, which spoils their appearance in the market. These also bear down the branches so much that they sometimes break, and anyway are encouraged to send up water sprouts. This spoils the shape of the tree and has a bad effect on

the bearing, for there is a call on the energy of the tree to make these sprouts just when it is all required for the filling of the fruit. Therefore it is profitable to cut off many of the smaller fruits from the clusters of grapefruit.

As regards pasture oranges, the most that can be done is to free the necks of the trees from the unsightly and damaging sprouts that often spring up, for they are only drawing from the energy of the tree which otherwise would go to make fruit. The weeds growing close round the trees should also be cutlassed out, and the wild pines and other foreign growths growing on the trees should be knocked off. If, after November, all the useless fruit instead of being left to hang, ripen, and drop on the ground, were taken off, this would also relieve the trees of a considerable strain upon them and encourage them to put forth their new blossoms earlier.

We do not believe in deep forking through orange groves unless up the middle, far out from the stems, at this time, as so many roots will be broken and otherwise injured when there would be a considerable call upon the trees to heal the wounds and make new roots. As a matter of fact the feeding rootlets are mostly near the surface and are more encouraged, without any injurious effects, by a mulching, than by tearing up the ground, roots and all.

The practice of putting young pigs in orange groves such as mentioned in the paragraph above is good, but they are better taken out by the end of the year and the trees left undisturbed for the trees to bloom in February and March; if in January all the better for our purposes. It takes, in the earliest districts six months from the blossom until the fruit is fit to cut, seven months in many places and as long as eight months when the trees are shaded in any way. Orange trees should therefore blossom in February to enable us to ship good oranges from August. This is apart from trees occasionally influenced by some exceptional circumstances and which give mid-season fruit in May and June.

SHIPPING ORANGES.—ONE orange grower, *i.e.*, one who has a cultivated grove—among many on the same topic—writes us :—“I have again this mail received a private letter speaking of the miserable condition of the oranges exposed for sale in the fruit shops in England marked “Jamaica Oranges.” I trust that you will do all in your power to keep up the agitation to get some sort of check on the unscrupulous shipments of rubbish in the way of immature and otherwise inferior oranges which leave the Island. This is (if it has not already done so) simply ruining all prospects for the Jamaica Orange in the English market. Something must be done and that right soon or there will be no use shipping oranges to England.”

We have replied that the decision of the Orange Conference

held on 3rd November last has practically settled that nothing will be done, and that we will have to go on in the same disorganised and reckless way. We have little fear, however, that it will kill what orange trade we have. We shall likely always have some trade in pretty much the same hazardous condition, but for a typical orange-growing country like Jamaica, what we ship is absolutely trifling, and the quality far from flattering. It is evident that we are to be obliged to dodge along on the crumbs of an orange trade, and the many growers who have sunk capital and put forth enterprise and energy in building up orange groves, the fruit from which will compare favourably with anything in the world, are to have their ambition and their efforts to put creditable fruit in the British market, absolutely nullified by the large bulk of fruit, inferior or utterly unfit, that is shipped, such as reflects no credit on the shippers or the Island. As we have before written, such orange-growers, as their only hope, should put forth every effort to get their fruit in early, and they will then share in the fair prices that prevail for a short period, but which with a properly organised trade should last for eight months instead of two.

I have seen in Campbell's window, Glasgow, Jamaica oranges marked 4d. a dozen. I could hardly believe it. I thought your fruit was better than that.—Glasgow Correspondent.

PRUNING ORANGE TREES.—As a rule orange trees here get no pruning at all, but one or two growers we know have had pruning on the brain, and have never given their trees a chance to grow and spread properly. Citrus trees require very little pruning, being ever-greens. If in the first year they are planted out a little care is taken to see that they branch properly and take a good shape they will expand and develop symmetrically without much subsequent pruning. The trees should be preferred to head low and grow compactly. It is sufficient to cut out all useless inside growths, dead branches and any water sprouts that come up from the roots or low down on the tree. Now is the time to do all that—better if it had been done in December. Thinning out all useless inside growths, lets the air and warmth circulate through the tree, quickens the sap, keeps off damp, and so, moss and lichens and scale, hastens the fruiting of the trees and the ripening of the fruit. At the same time do not forget to take off all the fruit still hanging, that no good use can be made of now.

It is interesting to read the opinions expressed by our competitors in Florida and California. We are not alone at fault in our methods, but then, merit is comparative :—

A few years ago there was a great deal said about the danger of over-doing the orange business. The Florida crop steadily increased and the price gradually grew less, until the winter of 1894 froze, when from twenty-five to ninety-five

cents per box on the tree was about what was offered for inferior fruit, with somewhat better for inferior fruit, with a somewhat better price for Indian River fruit. At that time men who owned groves about DeLand freely admitted that they could grow oranges at fifty cents per box and realize a profit. But the freeze wiped all that out and left the market bare to the California fruit. Gradually the state is beginning to figure in the market once again. And though the price realized for the past three or four years has been little changed, inferior fruit realizing during this time from \$1.00 to \$1.50 per box on the tree, already the pessimist sees danger ahead from over-production.

Many proofs might be cited showing the mistake of this theory, at least so far as the Florida orange is concerned, when shipped ripe and free from smut and scale, but just one proposition presents itself to our mind at this time and it is this : There has always been a market for all the fruit ever grown. There is a market to-day for all that California grows. And here is the startling fact, viz : The latest estimate placed on the Florida crop for this winter is about 3,000 cars for the entire state, while one town in California, Redlands, shipped the same number of cars (3,000) last year. The estimated crop for the entire state of California this year is 25,000 cars or eleven and two-thirds the size of the present Florida crop.

Ship Only Good Fruit.—California orange growers are having great trouble with their fruit. The loss from rotting in transit is very heavy. The papers are urging greater care. The Riverside Press and Horticulturist says :—"The alarming reports that come from the East regarding the arrival of oranges in bad order emphasizes the importance of the investigation that is being conducted by G. Harold Powell regarding the decay of fruit. Mr. Powell has recently issued one bulletin that is of the highest practical value and further developments of equal value may be expected, as Mr. Powell's work continues.

But meantime the utmost care should be taken to prevent decay and this care should extend from the time the fruit is picked until it is placed on board the cars.

It does not pay to gather fruit, put up \$1.30 per box for packing and freight, and then sell it for \$1.10 or \$1.25. And that is about what some oranges have been selling for in the East lately.

Preventable Loss.—The California orange grower can not control the weather either here or in the East. He cannot prevent floods which may delay his fruit in transit. And he cannot regulate the matter of competition from apples or from Florida or foreign oranges.

But when we lose 10, 20 or 25 per cent of a car of fruit from decay which develops in transit, it is certainly up to him to find out if his loss in part at least, is not preventable. If a fifth or a quarter of a car of oranges has to be thrown away after it reaches the East, the grower has not only paid freight on 75 or 100 boxes of fruit for which he gets nothing, but he faces a demoralized condition of the market that means a low price for the balance of the car. Dealers are afraid of fruit that comes in with many boxes in bad order. They are gambling on its keeping qualities, and will discount the price accordingly.

Prof. G. Harold Powell, of the United States Department of Agriculture, who has been in California for some time investigating the decay of fruit, has completed one stage of his work and his conclusions are valuable.

He says the chief cause of decay is the puncturing of the fruit by nippers in picking, and has issued a bulletin, the main points of which are that one in five or six oranges is so injured or else badly cut, due purely to carelessness, to the use of pointed shears, etc., and a great deal of the injury passes unobserved at the time. This makes the fruit very susceptible to rot from blue mold.

HORTICULTURE.

Mulching in the Garden.—The advantages of mulching in dry weather are as follows :—A large amount of atmospheric ammonia deposited by the rains is retained and once the soil is moist the mulching keeps it moist, a certain proportion of water in the soil is necessary

to the best conditions for chemical action, to make the largest amount of plant food available and to enable the fibrous roots of many plants to feed to the best advantage; mulching cools and equalizes the temperature near the surface.

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Melons. The water-melon, musk-melon, and cucumber require pruning, if large fine melons are desired. The two former, especially when grown under good culture, form quite massy heads or crowns and send out decidedly more runners than they should have. All should be pruned off at the crown but three or four, and the ends of those should be nipped when $1\frac{1}{2}$ or 2 feet in length. Every observant grower has taken notice of the fact that nearly every melon is produced on a lateral and very few on the main runners. Nipping off the ends of the runners induces the early starting of the fruitful laterals and thus give earlier melons. When a promising young melon is observed on a runner, nip off the latter about three leaves out from the young melon. Now gently take hold of the runner containing the embryo, and trace it back to where it proceeds out of the crown at the centre, near the root, and remove every lateral, leaving the task of each runner to the production of one melon; or two may be left if the vine is a very vigorous one, in rich soil. Thus each vine is limited to the production of from four to six melons, and these it will produce of large size and with astonishing rapidity. If left unpruned it will start a dozen or more runners and a great bramble of laterals containing many small, poor melons.

* * * *

Treating Tomato Plants.—Here is a method of planting out tomato plants for which certain success is claimed. Sow the seed in a seed bed. Do not lift them for transplanting until they are large and strong. Before planting out, clip all the leaves off except the top bud. Plant deep in the soil. The plants so treated will start to grow immediately, because they are not obliged to expend their energy in trying to revive the dying leaves and they will bear a month earlier.

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Tomatoes.—For fine specimens the plants should be limited to the growth of the main stem only, by pruning away as they come every lateral branch and one prong of every fork and limiting the fruit to that attached to the main stem only. If the variety is one that produces numerically large clusters, these should be clipped with the shears down to not over three fruits per cluster. The plant should be trained to a single stake driven into the ground at the root when the plant is young or before planting, tying the stem of the plant to the stake at intervals of about 10 inches. By training somewhat spirally the fruits may be made to hang off from the stake so as not to be constantly driven against it by the wind and abraded or bruised. When the early bearing season is nearly over, and the plant has reached a height of about 4 feet, it may be

topped, and soon afterwards a sucker permitted to start from the ground for the subsequent renewal of the plant, the older head to be cut away when the fruits have all ripened.

* * * *

The Feeding Roots of Fruit Trees.—The active feeders of the tree in the soil are the young rootlets and root-hairs that are put forth the current year. The roots of five and two years ago are probably themselves totally incapable of feeding the plant. Even last year's roots are of little use except as they are a necessary basis of the new rootlets that develop this year. The young roots of each successive year of growth thus occupy different positions in the soil, and since most of the plant-food in the soil is incapable of movement, much of it, at any time, is out of the reach of the rootlets, and to be fertile the acre of soil must contain many pounds of plant-foods in order to insure the crop the few pounds which the crop requires.

* * * *

Caterpillars.—Cut worms or small caterpillars do a great deal of damage to young cotton plants, vegetables and corn. A mixture at the rate of 1½ lb. Paris to 50lb. cornmeal, which is equal to about a heaped teaspoonful of Paris Green and 2 quarts of cornmeal, dusted round the base of the plant, or in the case of corn a pinch of the mixture also put in the heart of the plant, kills these pests. If the mixture is made into a stiff paste by stirring in a mixture of molasses and water, and a small handful is laid through the corn fields here and there, it will also poison mice and rats, which dig up the corn when planted or attack the cobs when they are ripening.

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Lawns.—A great many people imagine that after a heavy rain is the proper time to cut the grass on their lawn. This was true when the only means of cutting grass was the scythe or hook. The damp on the grass helped greatly. But since the introduction of lawn mowers this has changed. The proper time to use a mower is when the grass is dry. Then it does not injure the roots of the grass.

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Seeds.—Seeds inherit to a certain degree any traits of character belonging to the parent tree, consequently trees acclimatised to up-land conditions should be preferred as seed-bearers for seed to be used under similar conditions. On the contrary, coast grown seed which may inherit tender qualities should not be used up-country. But almost all imported seed coming from harder conditions than ours, is consequently safe for use here if the climate naturally suits the tree or plant.

ALL earthenware articles must be well soaked in cold water before taken into use. They will then be less liable to crack when washed in hot water.

ODDS AND ENDS.

Marmalade.—There is an increasing demand in Boston, U.S.A., for preserves, and particularly for orange marmalade, which sells well. The leading manufacturers in the United Kingdom, however, do not appear to push their wares, as some of the best known marks are not always to be found.

* * *

Florida Oranges.—The shipping of green fruit is again the main topic of conversation among growers. Several writers to The Packer say, "Warn your people against shipping green and unmarketable of past seasons should be all the warning needed. Not a Florida orange should leave the grove until November 1st. A few could be shipped October 15th, but this is too soon. Don't kill the sale by shipping green and unmarketable fruit. It doesn't pay. Of course, you'll find this out to your sorrow if you ship, but why not profit by the experience of others?"

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Orange Trees in Spain.—An esteemed correspondent in Spain recently wrote us briefly on the subject of the disease which has attacked the orange trees in Seville. He informs us that the disease is locally known as Filorea, and is the attack of an insect or bacilli which withers the leaves of the trees. The "remedy" which is being at present applied consists of a solution of creosote, which is sold in tins of 23 gallons.—"The Fruit Grower," London.

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Pine Apples.—Some idea of the extent of the pineapple industry of the Straits Settlements may be gathered from the fact that 448,000 cases of preserved pineapples, worth nearly \$2,500,000, were exported in 1904, nearly the whole of this produce going on to the European markets. The range of produce and its enormous bulk is a remarkable testimony of the value to the community of the produce of the Straits Settlements. In connection with the pineapple industry a very large increase in cultivation is going on, much old abandoned land having now come under this crop.

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THERE is no pursuit wherein so much depends upon the right thing being done at the right time as in agriculture; and in all other pursuits the man of close observation and systematic habits—who is not too proud to learn from any sources, however humble—is the one who will succeed, for there is no better guide than to seek the advice and experience of others and by following the advice tendered, it will be the means of preventing decay, and will also give to the plants new life. If we would only appreciate and act upon this!

It is conceded by well informed fruit growers in the United States that barely 15 per cent. of the trees planted ever return a profit to their owners. The various reasons are: Poor stock, wrong varieties or varieties unsuited to the location, or neglect in fertilizing or cultivation.

COMMENTS.

BANANAS.—A clerical error occurred in the second line of our article on page 453 of last issue on the Timing of Bananas where *per annum* was printed for *per month*. We began the article by saying that "We are exporting from Jamaica just now at the rate of over one million bunches of bananas per annum"—instead of saying per month. As a matter of fact by the end of the financial year 31st March, we should almost be up to the total of the year before the hurricane of 1903. which was fourteen millions, and, barring misfortunes, the following year should see our exports much increased even beyond that figure.

THE SOCIETY'S STOCK.—The Shorthorn Bull "Crystal Ray," the Aberdeen-Angus Bull "Enterprise" and the Aberdeen-Angus Bull "Alaska" have now been sold. The King's Shorthorn Bull "Desmond" is now standing for service c/o Mr. A. B. Ventresse, Elm Tree Dairy, Cross Roads, St. Andrew. The King's Hereford Bull "Sylvester" will be at Knockalva until the end of February. The Stallion "Sir Gerald" is stationed meantime at South Pen, Constant Spring Road, St. Andrew, and is in splendid condition. Offers are asked for this Stallion which is now 10 years old and is guaranteed to be hardy, docile, easily fed and a sure foal-getter, and his stock have always been most saleable. They are not *race* horses, but no better *harness* ponies have been bred by any Stallion here.

PRIZE HOLDINGS COMPETITION.—The judging of the holdings entered for the Competition for prizes offered for the beat kept Small Holdings will take place as follows:—*Clarendon*, beginning 29th January (instead of the 9th February as formerly arranged) and continuing until finished, which is expected to be about the 23rd February. *Portland*, Thursday 1st March to Friday 15th March. *St. Catherine*, Monday 25th February to Friday 16th March. The judging may not continue later than this, as a report has to be made to the Board of Management at their meeting on the 21st March, and between that date and the 31st March the prizes have to be paid so as to be included in this financial year.

AGRICULTURAL IMPLEMENTS.—There is no excuse now-a-days for those whose land allows of the using of horse or cattle implements, for not having at least a light plough. The Chattanooga

Pony Plough is advertised at 24s., and this may be used as a light cultivator drawn by one horse, or one mule, or a steer. Those who are planting cotton and corn on a large scale can get a planting machine for £1 16s. which saves a great amount of hand labour. Those who carry on cultivation on a large scale on ploughable lands should not be without a disc plough, which is a most effective implement for breaking up the soil and which cost £8 10s. There are still a large quantity of wooden-cane mills being used by small settlers, which are unwieldly, noisy, and very ineffective and wasteful. Their owners assert that the wooden mills make clearer sugar than the iron mills, but this is only because they can do with less cleaning than the iron mill. If the iron mill is kept perfectly clean it turns out as light coloured sugar as the wooden mill, is quicker, and gets more of the juice out of the cane. These mills are now to be got at prices within the power of any diligent settler to buy.

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SEEDS AND PLANTS.—The next great planting season for almost every product falls almost generally throughout the island between 15th March and April 15th—corn, peas, all sorts of vegetables, fruit trees, may be planted or transplanted during this period. In short it is the spring here, as well as further north where there is more distinction between the seasons. We shall be glad as usual to be the medium of supplying seed-potatoes, vegetable seeds, cow-peas, seed-corn, guinea-corn, eggs for setting, etc., for those who find difficulty in getting supplies. A cash deposit for the approximate cost must accompany the orders.

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PRIZE HOLDINGS SCHEME.—A Scheme for Prize Holdings among the small cultivators of cocoa has been established at Grenada on the lines of our Jamaica Scheme. The object of the Scheme is to stimulate greater attention being devoted to their holding by peasant cultivators of cacao, with a view to increasing the total exports of the Colony.

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BANANAS IN TRINIDAD —In the Annual Report of the Botanical Department of Trinidad, under the heading of Banana Planting, it is stated that bananas planted in June 1904 had no fruit fit to cut by September 1905, although bunches were *beginning* (italics ours) to shoot in considerable numbers. It is also stated that in the Jamaica Bulletin 17 months is given as the time in which bananas may be expected to fruit. Surely this is a mistake for in Jamaica any man who planted bananas and did not get them to fruit for the first time under 17 months would certainly give up the business. His soil and conditions would evidently be very unsuitable. Even at an elevation of 3,000 feet, when cultivated, bananas will be fit to cut within 16 months from planting, although much depends upon the size of the sucker planted. On the plains fruit is begun to cut sometimes before the twelve months are out and all the fruit is expected

to be cut within 15 months. With ratoons it is different—naturally they take longer as the young suckers or off-shoots are playing second fiddle to the parent plant. On fresh soil, under irrigation, the fruit of many banana plants are cut under the year, but the average time on average soils on average elevation, say under 2,000 feet, for a banana plant to produce fruit ready for cutting is from 12 to 15 months.

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SUGAR.—I am not a believer in high prices for sugar in future, but I am convinced there is a new era in store for sugar cane or for cane sugar. The moment the Continental Beet producing countries recognise the fact that they cannot compete with this cultivation, that they will have no very large excess of crops for consumption in their own countries for export. If experts are correct and Beet Sugar cannot be produced under the price of £9 f.o.b., Hamburg, the present price of £8 5s. must lead to a decline in the sowing for the next crop.—(C. E. deMercado in "Gleaner" 'Xmas. No.

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APPRECIATION—I would close with the grateful recognition of the good work that is being done by the Agricultural Society towards the realisation of my vision, in its agricultural instruction; most of all in its Holdings Prize Scheme, it is trying to educate the peasantry on the material side, to the comprehension of the decent homestead life which must be a basis of any approach to Utopia that I can imagine for Jamaica. The appreciation of such a life and the desire for it is essential above all progress. —Canon Simms in "Gleaner" 'Xmas- No.

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JAFFA ORANGES. An inquiry has been made of the Imperial Department of Agriculture whether forms of the true Jaffa oranges are grown in the West Indies. This is a matter of interest to all who are concerned in the cultivation of citrus fruits. The Imperial Commissioner of Agriculture would be glad to receive information from those who possess true Jaffa orange trees, and also specimens of the fruit, to be addressed to the Head Office of the Department at Barbados. A good many orange trees budded to the Jaffa variety have been sent out here and we shall be glad to hear from any growers who have them as to how many trees they have, how they have grown in comparison with other varieties and whether the tree has kept true to type. The Jaffa fruit should be oval, seedless and pithless. We would be glad to forward samples of this fruit to Sir Daniel Morris if sent to us.

In blowing out a candle always hold it above you.

Foul-smelling rooms may be rendered quite sweet by a little coffee being roasted in them.

BRANCH NOTES

CENTRAL PORTLAND.—The postponed annual meeting of this Branch Society came off on the evening of the 2nd of August. There were present: Messrs. J. Williams, Albert Roper, Alfred Roper, Alexander Carr, Robert Roper, Charles Roper, T. F. Thompson, William Mitchel, R. Thompson, McGibbon, Alexander Gillespie, Alfred Brown, and Joseph Brown. It was proposed by Mr. Albert Roper, seconded by Mr. Alfred Roper, that Mr. Williams take the chair. This was unanimously agreed to. The first item of business on the agenda was the election of officers for the ensuing year. On the motion of Mr. J. Williams, seconded by Mr. Alfred Brown, Mr. T. F. Thomas was unanimously elected President. He, however, declined the post, stating that his onerous duties as overseer, would not permit him to give satisfaction to the Society. The Secretary, along with Messrs. Williams and Albert Roper, impressed on Mr. Thompson that he was the best man for the position and they begged that he would serve them. Mr. Thompson then reconsidered what he had said and promised to serve the Society. Both the Secretary and Mr. Williams thanked Mr. Thompson for reconsidering his decision of refusal. The following gentlemen were unanimously elected to serve as Vice Presidents: Messrs. J. M. Roper, Alfred Roper, J. Silveira, J. O. Thompson, and Chas. Roper. Treasurer: Mr. J. S. Williams. Secretary: W. N. O'Hara. Assistant Secretary: Mr. Albert Roper. Board of Management: the President, Vice-President, Treasurer, Secretary, Assistant Secretary, and Messrs. R. N. Roper, Alexander Carr, C. M. Harris, Jos. Brown, Alfred Brown, Alexander Gillespie, McGibbon, R. Thompson, A. F. Hanna. The gentlemen then thanked the others for electing them to office. The minutes of last meeting were then read and confirmed. The Secretary reported that he intended to send a revised list of members to Mr. Barclay, and the Journal would be discontinued to those members who had not paid up their subscription. On the motion of Mr. T. F. Thompson, it was decided to give timely notice to the careless members before sending up the revised list to the Secretary. It was decided to give two weeks' notice at least and that the Secretary issue circulars to that effect. On the motion of the Secretary seconded by Mr. Albert Roper, a vote of thanks was unanimously given to the members who held office during the past year. Mr. O'Hara addressed the members present. He impressed on them the need for co-operation. He argued that if the members allowed the Society to die now, in years to come they would have to organize another. Mr. Williams also addressed the members. He advised them to read the Journal and to act on the good advice therein found. He had acted on the good advice given from time to time in the Journal and he found that he was successful. The members present promised their hearty support to the Society during the present year, and they would do their best to get others to join. A letter was read from the Revd. Peter Sibley in which he acknowledged the receipt of payment for a half Egyptian ram kid purchased from him some time ago. Mr. Williams reported that the kid was thriving well. An address was read to the members for their approval. It was drawn up for the late Assistant Secretary, Mr. J. W. T. Walker, for his services during his term of office. This brought one of the most interesting meetings we have ever had to a close, the hour being 9.50.

DUAN VALE.—A meeting of this Branch Society was held at Duan Vale on the 11th November. Present: Conway Whiting, Esq., president, Revd. M. O. Surgeon, Vice-President, Revd. T. J. White, (visitor), Messrs. C. S. McFarlane, H. Hansom, Thomas James, and six other members. In the absence of the Secretary, Mr. Hawkes, and his assistant, teacher Small, Mr. C. S. McFarlane acted as Secretary *pro tem*. Arising out of the minutes were (1) the matter of correspondence between the president and the head office of the United Fruit Company at Port Antonio, and (2) a petition to the Parochial Board of Trelawny concerning roads to the mountainous parts. The President said he had not written to the head office of the United Fruit Company but had had an interview

with one of its agents in Falmouth, and was assured of good concerning the intention of the Company to encourage growers always in the ready purchase of good fruit. In *re* petition he said nothing was done, but that it was his intention to attend to the matter without further delay to afford facilities for growers to convey fruit from the mountains. A healthy conversation led by the President took place concerning the cultivation of cocoa, cassava, and oranges. Revd. Mr. Surgeon spoke on the necessity of co-operation. His remarks were timely and apparently appreciated by all present. The matter of employment of people of a locality through which a main road passes was lengthily discussed, with the unanimous opinion that the road authorities should surely give the people of the district the privilege of working the portion of the road that passes through their neighbourhood. The following gentlemen were elected members: Dr. W. O. Lofthouse, Messrs. Alex. Holder, and L. A. Archer, other matters of minor importance were dealt with. A vote of thanks to the chairman brought the meeting to a close.—E. J. HAWKES, Sec.

RIO MINHO.—On the 8th inst at 7 p.m. the monthly meeting of this Branch Society was held in the Park Hall Schoolroom. A letter from the President regretting his inability to attend through indisposition was read. Mr. E. R. Bryan being absent, his paper was deferred for the next meeting. A paper was read by Miss R. Brown, "The Journal and its Uses," in which it was shown that there was to be found in that useful publication information useful to every class of workers. A discussion followed, in which the members wanted to know the efficacy of the Virus advertised as a poison in the Journal. It was decided to give it a trial after further information has been gathered. Mr. J. Hirst read an interesting paper on "The Horse," dealing with his origin and the different breeds. Vegetable seeds were distributed to the members present. The seasons are all that agriculturists desire.—W. THEO. MCKAY.

DEESIDE.—The monthly meeting of this Branch Society was held on Tuesday the 5th December. There were present: A. Arnett, Agricultural Instructor, J. A. Foote, Esq., President, D. Thomson, Vice-President, C. Hudson, Treasurer, A. McKenzie, Secretary, and several other members and visitors. After the reading of the minutes Mr. Arnett was asked to preside over the meeting. He was glad to find that the Society was still working hard, and urged upon the members and visitors to strengthen the hands of the leaders. He also gave a brief report of his work away in Portland which was very humorous and instructive. After this address the business of the association was discussed. The matter *re* competition which was left over from the past meeting was fully discussed and it was decided to hold this Show the Wednesday after Easter Monday. Subscription lists are being put up and every effort will be made to make the attempt a success. Mr. Arnett has promised to use his influence toward this, and has promised to be back at our next meeting in January, 9th, 1906, to assist to complete our plans. A committee was appointed to draw up rules for this competition. It was decided to write Mr. Barclay for a small supply of seeds to distribute to the members. The Angora ram which was kindly lent to this Society by Mr. Arnett is still improving and is surprising those who despised him at first. He has given a couple lovely kids which are admired by all. He is to remain with this Society for about four months more. He and two of his offsprings were present at the meeting for inspection. After another encouraging address by Mr. Arnett the meeting closed.

PORUS.—The regular monthly meeting of this Branch Society was held in the Church Schoolroom on Monday, 6th November, 1905. Minutes of last meeting were read and confirmed. A suggestion was made by Revd. W. B. Esson, Vice-President, that a special day be fixed for discussion of the Produce Protection Law, when a committee was formed, consisting of Messrs. H. S. Braham, (President), R. S. Munroe, (Treasurer), A. Thomas, S. H. Blagrove, and A. S. Rose, (Secretary). Correspondence was next dealt with. A letter from Messrs. Jno. Haddon & Co., was read, inviting consignments of coffee for marketing, when they would give them their best attention. The Revd. Esson stated that he was quite in favour with the object of the letter as it would be a great benefit to Porus if they could market the produce direct. The President stated that his

experience in business matter was that if the people would co operate to cure their coffee in a proper way, they could get better prices than they were at present getting. He further stated that if Messrs. Haddon could show that they wanted to put down the middle man in England as well as here, then he would go along with them, but he did not see where they offered any inducement. The Revd. Esson said if they had a good agent in Jamaica and England they would be able to do better business. A letter was read from the Parochial Board re the Spring Grove road. It was suggested by Revd. Esson that the Postmistress be requested not to put the Journals on the window as several members complained that they did not get their Journals. A letter was also read from the Colonial Secretary re Standard Measures for oranges. It was suggested by Revd. Esson that the letter be left over until they write to the various Branch Societies and get their opinions when they would be in a position to reply to the Governor. The minutes of the committee meeting were read and submitted to the general meeting. The subject of holding a fair was introduced by Revd. Esson; he thought it would be a good thing to have it in Porus, where people could meet to buy, sell, or exchange horses, mules, pigs, goats etc., etc. The President said he had tried a business of the sort in Porus, and it had cost him plenty of money and he was not successful, so he hardly thought such a thing would succeed there. No other business being before the meeting it adjourned till the first Monday in December.—CHAS. ROWLAND, Asst. Sec.

FAIR PROSPECT.—A meeting of this Branch Society was held on Saturday, 10th December, 1905. Present: Messrs. R. H. Elworthy, (President), J. W. Munroe, (Treasurer), Thos. Powell, C. B. Duncan, Josiah Munroe, C. G. Street, T. J. Stephenson, the Secretary, and a visitor. The meeting was opened with prayer. Minutes of last meeting, (5th August), were read and confirmed. Correspondence.—A long list was read and discussed. Conspicuous among them was one from Mr. Jno Barclay, intimating the time and manner of sending to the head office Branch Reports; also another from Messrs. J. Haddon & Co., London. Appointment.—Mr. L. A. Cunningham Brown was appointed third Vice-President of the Society. Affiliation Fee.—The President said the Secretary having paid the amount to the Parent Society without the authority of the Committee, from the fact that no meeting had been held since 5th August last, and he had been twice written to about it, he the President moved that the Secretary's action be approved, and the amount be now sanctioned, the Treasurer seconded and it was unanimously agreed to. Prize Holding Competition.—There was a discussion thereon and some entry forms were distributed. Resolution.—The following was moved by W. Z. Buckley, seconded by C. G. Street and unanimously agreed to, "That the standing Committee of this Society be met in the Society's room on Friday the 15th inst. at 4 p.m. to discuss what best can be done to promote the interest of the Society." Adjournment.—After some minor matters the meeting stood adjourned to Saturday, 6th January, 1906.—W. ZECH. BUCKLEY, Sec.

PORT ROYAL MOUNTAINS.—The quarterly meeting of this Branch Society was held at Mount Fletcher, on Saturday, 28th October. The following members of the Managing Committee were present:—Messrs. W. G. Thomson, Vice-President, W. Dixon, J. Withworth, J. Jacobs, Thomas Tait, R. Tait, R. A. Olare, W. Johnson, C. L. A. Rennalls, and the other ordinary members. The minutes of last meeting were read and confirmed. The Show accounts were presented. The Secretary read a letter from Mr. Purville complaining that a special prize awarded at last Show was not paid, he also intimated that there were one or two more complaints of a similar nature. He was instructed to inform Mr. Purville that owing to the limited state of the funds at the disposal of the committee they could pay only such prizes as were offered in the prize list. The Secretary was instructed to write the Board of Agriculture asking for the services of Mr. Cradwick to give a lecture and demonstration on cocoa cultivation to the people at Cambridge District. In view of the proposed Show of the Jockey Club in August it was decided to hold the Port Royal Mountains Show in April, (since then it is understood that the Jockey Club Show will be held in February). The committee appointed to look after the Poland China Boar was requested to make the necessary arrangements as it was intended

that the boar will be shipped that week. The following new members were elected :—Ernest Willis, Montego Bay ; W. A. Blake, Gordon Town ; Isaac Henry, Gordon Town ; Revd. F. A. Paget, New Castle.

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SPRINGFIELD, St. James.—A special executive meeting of this Branch Society was held at Kensington, on the 15th December, to arrange for a Local Show, which is to come off on the last Friday of January, 1906. Present : Revd. T. C. Hutchins. (in the chair), Mr. J. Jacob Irving, (Treasurer), and Messrs. J. Shaw, B. B. Morris, and Samuel Leech. Owing to pre-arrangements to notice for meeting, the Secretary could not make it possible to be present. The Treasurer therefore acted as Secretary *pro tem*. Business.—A committee was formed to attend to the exhibits. It consisted of the following :—Messrs. J. A. McLaughlan, Samuel Leech, and Richard Taylor. Agreed that the competition be held at the Kensington Schoolroom. Only members can compete. The general public is invited. The judging is to begin at 11 o'clock, and the public will be admitted at 12 (noon). It was decided to add some new items to those published in the November Journal viz :—Cassava Starch, Poultry, Cocoa, Donkey. Circulars are to be got up for distribution among members. Moved by Mr. J. Jacob Irving and seconded by Mr. B. B. Morris, that each member must furnish a list of what he intends to exhibit. It was agreed that a letter of condolence be sent to Mr. J. A. McLaughlan in consequence of the loss of his son—a member of the Society. Agreed that members may bring any exhibit though no prize may be awarded.—D. ADOLPHUS SMART, Sec.

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CENTRAL CORNWALL.—The regular quarterly meeting of this Branch Society was held at Bickersteth, on the 1st December. The following members were present :—Revd. J. Duff, president ; E. J. Hewitt ; the Travelling Instructor ; Messrs. L. R. McKinley, J. A. Neilson, N. N. Graham, J. A. Stewart, G. E. White, G. Hine Dalrymple, J. Hades, William Dalman, and a very large number of visitors. The meeting was to be at Chester Castle, but on the same day, Mr. Shore and other gentlemen from Montego Bay met at Bickersteth to lecture on the proposed Central Sugar Factory, and so it was found advisable that the Society meets there as most of the members who perhaps would be at the meeting, would like to have the benefit of the lecture. Most of the time was taken up in the putting forth of the plans relative to the factory business, and so no important business in connection with the Branch could be transacted. The minutes of the previous meeting were read and confirmed. The competition which was to be held had to be postponed on account of the sudden change of the meeting place, till the next meeting. The Experiment Plot Committee did not meet, so no report could be given. Mr. Cradwick said that he has got the pure bred Poland China Boars which he will allow to serve at 4s. Nothing was said of our boar as Mr. Henderson was absent. It is agreed that the next Show at Montpelier be held in 1907 as there are more signs of success then, than in 1906. Mr. Cradwick explained to the meeting that according to Mr. DeMercado's opinion, Mr. McKinley's pimento which got the 3rd prize at the competition held in October, was really the one to have the 1st prize. As it was he who judged and gave the 3rd prize, he paid Mr. McKinley the amount for the 1st prize. Many members did not get their Journals for some time, and the Secretary was asked to write and make enquiry. Mr. Cradwick gave notice to move at the next meeting, "That the Society meet on the first Friday in each month." The next annual meeting will be held at Mount Reece on the first Friday in April.—E. S. JARRETT, Sec.

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ST. PETER'S, Petersfield, Westmoreland.—On Saturday, 30th December, 1905, this Branch Society held a competition among its members in the following products :—Sugar, Coffee, Peas, Cocoa, Cassava, Starch, Corn, Pumpkin, Yams, Sweet Potatoes, Oranges, Grapefruit, Chocolate and Plantains. The entries were as follows :—3 in sugar, 10 in coffee, 5 in peas, 4 in cocoa, 8 in cassava starch, 6 in corn, 7 in pumpkins, 7 in yams, 3 in sweet potatoes, 8 in oranges, 2 in grape fruit, 1 in chocolate, and 1 in plantains. A special class was added for donkeys. The members exhibited great interest in the competition, rendering the scheme very keen. The judges were Stanton Clarke, Esq., Overseer, Sweet River, and

W. Cradwick, Esq., Travelling Instructor. The price winners were: In sugar, Marian Plummer, 1st., Saml. Murray, 2nd., and R. A. Blake, 3rd. Coffee, Wm. Leslie, 1st., Jos. Williams, 2nd Samuel Murray, 3rd. Peas, Alfred Hay, 1st., Marian Plummer, 2nd., J. H. Knott, 3rd. Cocoa, Marion Plummer, 1st., W. Leslie, 3rd., J. A. Tate, 3rd. Cassava Staren, J. H. Knott, 1st., Jos. Fairclough, 2nd., Ben. Harrison, 3rd. Corn, Saml. Murray, 1st., J. H. Knott, 2nd., M. Plummer, 3rd. Pumpkins, Eliz. Forrest, 1st., Saml. Murray, 2nd., M. Plummer, 3rd. Yams, J. H. Knott, 1st., W. Leslie, 2nd., Eliz. Forrest, 3rd. Sweet Potatoes, Marian Plummer, special, J. Edward Simms, 2nd., J. Edward Simms, 3rd. Oranges, R. A. Blake, 1st., J. A. Tate, 2nd., Thos. McLeod, 3rd. Grapefruit, W. Leslie, 1st., Marian Plummer, 2nd. Chocolate, J. A. Tate, 2nd. Plantain, J. R. Haye, special. The judges were very painstaking and careful in awarding the prizes. They pointed out defects and good points as they went along so that very important lessons were learnt by all present. Prize money was distributed to the winners immediately after the competition. A meeting of the Society followed when minutes of the last meeting were read and confirmed. The President welcomed Mr. Cradwick and a vote of thanks was accorded Mr. Clarke for his invaluable help. The members expressed themselves extremely satisfied with the way in which the judging was conducted, for the lessons learnt and for the prizes. As the Paradise Show comes off on Easter Monday it was decided that the Show takes the place of the next competition. Mr. Cradwick in his obvious way of speaking commented on the competition and encouraged the members to make elaborate preparations for the Paradise Show. Business terminated.—J. EDWARD SIMMS, Sec.

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THOMPSON TOWN.—On Thursday, 7th December, at Thompson Town in the Mocho Mountains was created a record for Jamaica. Under the auspices of the Thompson Town Branch of the Jamaica Agricultural Society was held a Donkey Show. There was no fear of confusion in entries: the only classification for entering in the Show was to be a Donkey—of course with four feet. Otherwise the ground provided would never have held the competitors. Never in the history of Thompson Town has so much excitement been seen; in fact it is difficult to imagine unless one was present to see the amount of enthusiasm stirred up by 32s. worth of prize money distributed among Donkeys. The Show Ground was cleaned up long previous to the day of the Show, but up to the last minute little finishing touches in whitewash played a very prominent part, were being applied to every available object in the grounds. At 8 o'clock the Blackwoods band commenced to parade the town. The fifes, the drums, the triangle and the violin all did their best; but the feature of the band was the big drum which was vigorously pommelled from early morn to dewy eve by a lady. It was hard to tell which was the best feature of the band—the drum or the lady drummer. Next in importance to the band was “Mass Charlie,” the representative of law and order at Thompson Town. Never was a more orderly crowd; never was a crowd that enjoyed the day more than that which was marshalled and taken care of by “Mass Charlie” in the name of our Sovereign Lord the King. At 8 a.m. the competitors in the Show commenced to arrive, each and every one being duly assured that if his Donkey failed to take the first prize, second prize must surely be his. At 11 o'clock the entries were closed, and on the arrival of Messrs. H. W. F. Robertson and Isaac Rattigan, these gentlemen, assisted by Mr. Cradwick, commenced the arduous task of awarding the prizes to the 15 competitors. The prize list was as follows:—Thompson Town Donkeys, 1st. prize 4s., 2nd prize 2s., 3rd prize 1s. Smithville Donkeys, 1st prize 4s., 2nd prize 2s., 3rd prize 1s. Blackwoods Donkeys, 1st prize 2s., 2nd prize 2s., 3rd prize 1s. These prizes open to members of the Thompson Town Agricultural Society only. Class four open to the Island, 1st prize 4s., 2nd prize 2s., 3rd prize 1s. Champion prize 6s. The money was contributed as follows:—By the Society for the Protection of Animals in Jamaica 21s., by the Thompson Town Agricultural Society 7s., private subscriptions 4s. Prizes were awarded solely for the care bestowed on the Donkeys which were all Donkeys in constant work. Prize winners were as follows:—Thompson Town Donkeys: W. McLaren, (Charley) 1st; Chas. Thompson, 2nd; J. Richards, 3rd. Smithville Donkeys: P. J. Reid, 1st; M. Taylor, 2nd; M. Edwards, 3rd. Blackwood Donkeys: J. B. Burrell and Joseph Bennett equal 2nd; as the

Blackwoods Donkeys were not up to the standard of the Smithville and Thompson Town Donkeys, the judge decided to award no first prize. T. D. Bailey, 3rd prize. Thompson Town Agricultural Society's prizes—open class: C. L. Matthews, 1st; Thomas McLean, 2nd; Isaac Bennett, 3rd. Great surprise was manifested at the awarding to "Charley" of first prize in the Thompson Town class. "Charley" is a venerable Donkey about 25 years of age, hale and strong and able to carry his load with the best of the young ones, and as the prizes were offered simply to encourage people to be kind and take care of their Donkeys, the judges at once decided that "Charley" was first prize winner in his class. The thanks of all people interested in the welfare of all animals in Jamaica are due to the Thompson Town Agricultural Society, especially to the officers, the president (Mr. J. B. Morrison), Mr. W. A. Bryan, Secretary, and the Assistant Secretary, Miss Campbell. They all worked hard to second the efforts of the Society for the Protection of Animals in Jamaica, for the better care of animals.

THOMPSON TOWN.—The regular monthly meeting of this Branch Society came off on Thursday, 7th December, 1905, at 7 p.m., at the usual place. It was decided to make this meeting very interesting and in this the ladies (members) played an important part. Although rainy, there was a large turn out of members and visitors, among whom were Messrs. H. W. F. Robertson, (J.P.) and J. Rattigan, who acted as judge at the Show during the day. Mr. J. B. Morrison, President, took the chair and opened the meeting. The "Special Programme" prepared for the occasion assisted in giving the finishing touch to the whole day's proceedings. Mr. W. A. Bryan presided at the organ throughout the meeting. The first item on the programme was a solo, "Kiss Me" by Miss M. T. Thomas, who in her usual attractive style gave great satisfaction. The minutes of the last meeting were read and confirmed after which the ladies rendered a chorus, "Hard Trials." Mr. Cradwick gave a lecture on "Pig and Fowl Rearing," and from one of Sutton's Seed List he advised the kinds of seed which should be selected. At this juncture Miss S. J. Douse rendered a solo, "Phonograph the News." Mr. Cradwick then gave a lecture on the successful growing and marketing of Irish potatoes. The lecturer and founder of the Thompson Town Agricultural Society spoke of the rapid development of the Society, and of the successful show and entertainment. It was resolved that Mr. Cradwick tender on behalf of the Thompson Town Agricultural Society, its sincere thanks to the Society for the Protection of Animals in Jamaica, for the one guinea given as prizes for the "Best kept Settlers Working Donkeys." Moved by Miss S. E. Campbell and seconded by Mr. T. N. Davis and carried. The ladies again rendered a chorus, "Mouse in a Mill," which was applauded and encored. Various items of importance to the small settlers were dealt with. Also a new law of the Board of Management confining the Prize Holdings to the piece of land on which the dwelling house is situated. In many instances the dwelling house is situated on a separate small bit of land, and the general cultivation on a larger bit at some distance from the home. This would deprive many persons of the privilege of competing in any of the classes mentioned in the Prize Holdings Scheme who would otherwise be qualified competitors. Resolution.—This Society regrets that the Board of Management confines the Holding to only the piece of land on which the dwelling house is situated, and hopes that the Board will see its way to return to the old form of judging the holdings. Moved by Miss S. E. Campbell and seconded by Mr. H. Peck. On behalf of the members of the Society the President tendered a vote of thanks to Messrs. Cradwick, Rattigan, and Robertson to which the latter replied. The meeting was then brought to a close by the singing of the National Anthem. Next meeting will come off on the 12th January, 1906. We are having rains nearly every day. The roads through the Blackwoods and Victoria districts are in a very bad condition. People are practically prevented from attending Church and great difficulties have to be encountered in travelling to and from market.—W. A. BRYAN, Sec.

Good copying ink may be made by adding one ounce of moist sugar to one pint of common ink.

CORRESPONDENCE.

Harmony Hall, Duncans P.O., 26th December, 1905.

SIR,—Do you or any of your readers know a good way to kill large fig trees other than by fire or cutting down, and the cheapest fence to confine goats. Is a penguin fence with two barbed wires any use?

G. P. DEWAR.

Green Vale, Orange Bay, 1st December.

SIR,—I have noticed on some of my cocoa trees numbers of tiny milk-white insects. As a rule they cluster round the stems of the cocoa pods though I have found some on the tender ends of the young gormandizers. Whenever these insects are on the trees these are always covered with stinging ants. The latter it appears follow the former for what purpose I cannot quite make out as they don't seem to kill them. In many instances the ants build the nests round the stems of pods attacked and completely cover the white insects.

So far I have not noticed any injury to either tree or pods attacked, but I am anxious to find out whether harm is likely to result, and if so what is the best and simplest means of nipping it in the bud. Also what these insects are called. Any information and advice will be esteemed by,

Yours sincerely, C. A. MILLER.

(If you had sent a twig of your cocoa tree with the insect on it, it would have made identification surer. However we are pretty certain that the little insects you mention are aphides (singular-aphis) and the ants not only place them on the trees, but actually protect them and care for them. They do this so that they may use them as milch cows. When stroked by the ants the aphides exude a drop of sweet liquor which is commonly called honeydew, and which the ants are fond of. The aphides are very common on pineapples. They generally go by the common name of plant lice. They do not always harm plants to a great extent, but certainly do some damage, as they live on the plant juices. To get rid of them either spray or splash strong soapy water over them made with soft soap or to this add tobacco tea made with 1lb. "Jackass Rope" boiled in 1 gallon of water for an hour.)

Little London P.O., 7th December, 1905.

SIR,—*Re* foreign birds introduced. A gentleman in St. Mary writes as follows:—"The Magpies are now just in good order *they are much better tick-birds than the black birds, (Ting-Ting)* it is good to see them on a cow, they go about picking the ticks in such a business like way."

Starlings are just the same; these birds should be placed on the list of protected birds.

Yours truly, R. J. TAYLOR-DOMVILLE.

SHOW TO BE HELD.

Only the following Show is at present arranged:—

Savanna-la-mar, Easter Monday, 1906.

The Journal

OF THE

Jamaica Agricultural Society.

Vol. 10.

FEBRUARY 1906.

No. 2.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Wednesday, 17th January, 1906, at 11.30 a.m. Present:—His Excellency Sir J. Alexander Swettenham, K.C.M.G., presiding; Hons. H. Clarence Bourne, W. Fawcett, Dr. Pringle, R. P. Simmonds, and Messrs. John Cameron, D. Campbell, R. Craig, R. H. Hotchkiss, J. R. Williams, and the Secretary, John Barclay.

The Minutes of the last Meeting (December), having been published in a copy of the Journal before the meeting, were taken as read and confirmed.

Sulphur and Salt Blocks

The Secretary reported that some time ago he had received for experiment some sulphur and salt blocks, as a cattle lick, and had sent these out to various penkeepers. There had not, however, been enough to get their effects properly tested, but so far, the reports said that while horses and sheep licked the blocks readily and seemed to be benefited by it, cattle would not take them at all, and it was thought that perhaps the proportion of sulphur was too great. He would try and get more blocks made with different proportions and try again.

Tick Wash.

The Secretary also stated that some time ago they had some correspondence with a Chemist in Singapore about a tick wash prepared from some native plant there, which was held to be most effective against ticks. He had had it tried, and while it was very effective on ticks, lice and fleas, on stock it was not more so than the different washes already used by penkeepers, and it did not act as a deterrent any more than the ordinary washes, while it would probably come dearer. He had taken the opportunity to write prominent penkeepers for reports as to what wash they were now using on their cattle and asking whether they thought the tick plague was being reduced. He asked leave to publish the letters as they contained matter that was interesting and would be of use to many stock-keepers. This was agreed to.

(These letters are published elsewhere in this Journal.)

Horticultural Society's Exhibition. The Secretary said that unfortunately, through the detention of the R.M.S. *La Plata* two days at Colon, she missed the connecting steamer at New York with our exhibits, and they only arrived in London the day of the Exhibition instead of a week earlier. He had immediately written a letter to the press explaining this :—

I notice in to-day's "Gleaner," in connection with the Fruit Exhibition held in London, that it is stated the Jamaica exhibits missed the steamer, and so Jamaica was practically unrepresented.

On the 4th of November I wrote letters to the press stating the arrangements made for shipping exhibits. I stated that the S.S. "Tagus" leaving on the 4th November and going the long route made it impossible to send fruit by her, that the Direct Line Steamer "Port Kingston," leaving on the 9th November, would arrive a fortnight too early, while the following Direct Line steamer would arrive on the date of the exhibition; that consequently I had made arrangements to send the exhibits by the R.M.S. "La Plata" via New York, leaving here on the 18th November, timing the exhibits to arrive in London by the 30th November.

Unfortunately, owing to the block at Colon, the "La Plata" was not able to leave here until the 20th. She arrived at New York on the 24th and did not catch the connecting steamer to London, which left New York on the 25th. The next connecting steamer from New York arrived on the day of the Exhibition.

This is the first time since the new arrangements of the Royal Mail Co. came into force that their steamers have failed to connect at New York and this detention of the "La Plata" at Colon was beyond their control.

I am, etc., JNO. BARCLAY, Sec.

He had also received a letter from the Secretary of the West India Committee on the subject as follows :—

The West India Committee, 15th Seething Lane,

London, E.C., 22nd December, 1905.

SIR,—I enclose three Press cuttings, from which you will see that we did the best we could with the very fine collection of fruit which arrived too late for the Horticultural Exhibition. I think it will be desirable to communicate this information to the Jamaica Press, as it will serve to allay any disappointment which might be felt by the exhibitors. I have sent the whole of the fruit to the Fruit Distributing Company, and have asked them to dispose of it to the best possible advantage, and shall write to you further about it by next mail.

With kind regards, I am, Yours faithfully,

ALGERNON E. ASPINALL, Secretary.

From the "Morning Advertiser," of 20th December, 1905 :—"A quantity of fruit which arrived too late for the recent exhibition at the Royal Horticultural Society's hall will be shown at the West India Committee's room, 15, Seething-lane, to-day, after 1.30 p.m. until six o'clock. Visitors will be admitted free on presentation of a visiting card."

From the "Daily News" of 20th December, 1905 :—"To-day a quantity of Jamaica fruit arrived too late for the recent exhibition at the Royal Agricultural Hall will be shown at the West India Committee Rooms, 75, Seething-lane, E.C.

From the "Standard," of 20th December, 1905 :—"A quantity of Jamaica fruit, which arrived too late for the recent exhibition at the Royal Horticultural Society's Hall, will be shown at the West India Committee's room, 15, Seething-lane, to-day, after 1.30 p.m. until six o'clock."

So that the best use had been made of the exhibits under the circumstances.

The Secretary was instructed to write Mr. Aspinall and express the thanks of the Board for the trouble he had taken with these exhibits.

Seville Oranges. The Secretary submitted letters he had received on the matter of experimental shipments of Seville Oranges :—

Gillespie Bros & Co., London, wrote —“ We now beg to enclose your letters from Messrs. Jas. Keiller & Sons, and Messrs. Chas. Southwell & Co., reporting on the two parcels of Seville bitter oranges which you sent to us for the purpose of having them tested. We regret that the parcel of six cases shipped did not arrive in good order, and that, partly from this, the results of the tests are not satisfactory as compared with Spanish oranges. As you will observe, the main point in which the Jamaica fruit fails is in the colour of the skin ; and it is possible that the botanical science of to-day may enable growers to remedy this defect. Since receiving the letter from Messrs. James Keiller and Sons, we had a further interview with Mr. Boyd, one of the Directors of the Company, on the whole question of the use of Jamaica bitter oranges. He told us that the present price of Spanish bitter is 7s. 6d. per case guaranteed to contain 130lb. weight of sound fruit, but that this price is rather higher than usual owing to the shortness of the Spanish crop. He is of opinion that if the Jamaica fruit could be improved in the direction indicated and if shipments of important quantities could be guaranteed to be made in the months of September and October, there would be an opening for the use of large quantities. We can well understand that the improvement of quality might well be a question of years, but of course the Agricultural Society of Jamaica can afford to look far ahead in these matters, and it will, we think, be able to decide from the data which we are able to put before you, whether it will be worth while to encourage the scientific cultivation of the bitter oranges.

From James Keiller & Sons, Limited, London :—“ With reference to Jamaica Seville oranges, which you sent us, we beg to state that we have tested these oranges, but find that in the condition in which they reach us, they are not to be compared with the Seville oranges. It appears to us, however, that if more care were bestowed on the packing, and we received them in really prime condition, suitable for our use (and we think it is a question of the time of packing the fruit, and its treatment during transit, by storage in a cold chamber, they would be far more valuable from our point of view. The heart of the fruit compares more favourably with the heart of the Seville orange than does the peel. We think that if greater attention were paid to the points which we have mentioned, the Jamaica would come into close competition with the Seville orange.”

From Chas. Southwell & Co., London :—“ We have examined the ten barrels of West India bitter oranges which you sent us and enclose a weight note of the out-turn of same. There would probably have been a smaller proportion of rotten fruit if it had been wrapped in thinner paper, and we think the barrels used are not such a suitable package as the usual orange cases ; even if the fruit were to keep as well in them they would cost considerably more for freight. The sound fruit is of a good firm juicy quality ; averaging rather larger than Seville, Malaga and Sicilian sour oranges. The rind, however, is too light in colour to be suitable for marmalade or candied peel making ; for this purpose a much deeper orange-colour is necessary. We have carefully tested the flavour of the rind, steeping same in a given quantity of spirit. On preparing the result with a tincture prepared in the same way from Seville fruit, we find that the West Indian peel has not the characteristic full bitter flavour that is required. We also submitted some of the rind to a large manufacturer of tincture who reported that the colour and flavour were not suitable for his purpose. We are therefore of opinion that such fruit would

not find a satisfactory sale on this market as it is of a different character from the fruit required for marmalade, candied peel and tincture purposes."

From Messrs. F. MacLachlan & Co, Glasgow, there were better results :—"We confirm ours of 10th inst., and have two favours of 31st October and 9th inst. Seville Oranges.—We regret to say that first parcel of eight barrels only reached us on the 17th inst., and that, even with these coming from Bristol by rail. The rate charged from Avonmouth is 51s. 81. per ton, and we had to pay 20s. 8d. carriage, and 3s. 1d. Bristol charges on the lot which we consider very high, and have written Elder Dempster & Co. complaining of same. We intended trying next lot by water, but we have advice that they are already sent off by rail. As to condition of the eight barrels received, we are sorry to say they were quite unfit to be sent out to our friends, such a large proportion being quite rotten, and the wrapping papers of the rest so wet that we thought it best not to risk them out in that condition. We therefore had them all selected out, paper off and each sound orange cleaned with a cloth. We lost in rotten ones $1\frac{1}{4}$ barrels and made up balance into seven barrels which we sent as follows :—Three barrels to Robertson, Paisley ; one barrel to Cairns, Paisley ; one barrel to Buchanan, Glasgow ; one to Stewart & Young, Glasgow ; and one barrel to Gray, Glasgow : and await their reports. We are of opinion that the fruit was sent out in a very irregular state of maturity, some far too ripe and others too green ; and what is wanted is evidently a perfect system of selecting immediately before shipment. The barrels, we are afraid, are not exactly suitable, the ventilation not being sufficiently through the air holes. We arrived at this conclusion from the fact that best preserved fruits were always on the side of the barrels, and all the damaged in centre. We hope the lot on the way will turn out better, and we shall see if this lot can be sold this time. We note there may be a mistake in one of the cases, and we shall attend to your instructions anent same. Since writing the above letter we have also just received eight barrels and four cases forming your second consignment. We have examined these hurriedly and find they are very much in the same condition as the previous lot, except the cases which are a great deal better, although we have taken out about a dozen rotten oranges out of half a case. We shall take up with our friends at once about these and see what they are prepared to do and will advise you by next mail."

In a rather letter Messrs. P. MacLachlan, wrote :—"After the good ones were wiped, they looked very well, and Buchanan of Glasgow told me they were in very good condition. He took all the second lot—four cases and seven barrels. He said Malagas came in first and were packed in cases running about $1\frac{1}{4}$ cwt. nett, and were worth 8s. 6d. to 9s. per case. But Sevilles came shortly after and run about 1 cwt. and 40lb. nett, and yield generally about 10s. and sometimes 11s. when they run scarce. Ours should run about 8s. or 8s. 6d per barrel. A trial by an important firm like Buchanan is really all that you require. The trial they made of the one barrel of the first lot turned out all right, although they detect a slight difference in flavour—more bitter—from the genuine Sevilles, and the skin is so pale in colour that it is hardly seen in the marmalade. They like it dark so that it strikes out from the pale jelly. If you think that price would pay you and decide to send more, be sure they are properly selected, as I am sure they would never take well if received in the condition we got those two parcels, and to select them here is out of the question for large quantities."

Alexander Cairns & Sons, Paisley, reported :—"The case of Jamaica bitter oranges arrived safely and we found the fruit in good condition ; it seems to have carried fairly well in the cask, and we believe that this is a better package than the ordinary orange cases ; as it will be more easily handled and will not get so many knocks as an ordinary orange case does during transit. We made up some marmalade with this small lot, but it is difficult to arrive at any special decision with so small a boiling. However, it seems fairly good. We will be pleased to hear from you as to what these oranges would cost per cwt. delivered at quay, Glasgow, and also at what time of the year the crop of this fruit is available. Regarding condition of fruit on arrival. In the bitter orange contracts which we make with the Spanish and Mediterranean shippers they give a guarantee of a certain weight of sound fruit to each package. With this new trade in

oranges shipped from Jamaica there would require to be some provision of this sort included in any arrangements that are made as to shipment."

Messrs. Robertson & Sons, of Paisley, reported :—" With reference to Jamaica bitter oranges, these arrived in good order and made fairly good marmalade. We are afraid, however, that if they were much riper they would not do. We should be glad to have a small lot if you have any more coming on to make a further test."

Mr. Williams said he did not think the experiment was at all hopeless.

His Excellency said it was not hopeless. He thought it was extremely hopeful.

Mr. Simmonds said he met a gentleman in the train here the other day, who told him that he was willing to ship a large quantity of these Seville oranges from Jamaica to England, but on account of the shipping rates for the oranges he was not able to do so. Those rates, the gentleman told him, were about two and a half times more than the rates between Spain and England, and consequently, he would not undertake the shipments..

The Secretary explained that the shipment which he had made were small ones. They had been sent by train from Bristol, but Messrs. MacLachlan & Co. had said that it would be cheaper to ship the oranges on from Bristol by steamer to Glasgow, and if large quantities were sent, of course, special rates would be quoted.

Mr. Dugald Campbell stated that he thought the Royal Mail Co.'s through rates to Glasgow were prohibitive, as the Hamburg-American Co. had delivered his boxes of oranges in Glasgow for 2s. 6d. each.

The Secretary was instructed to write or see the Superintendent of the Royal Mail Co. with regard to the question of freight on Seville oranges between Jamaica and Glasgow via New York.

Prize Holdings The Secretary submitted the following
Scheme. memo regarding the Prize Holdings Scheme :—

As it has been decided to take only three parishes in the next round of the Prize Holdings Competition in next financial year instead of four as in the first Competition, it will require to be decided which of the four parishes, St. Ann, Manchester, Trelawny, and St. Mary, is to be dropped out of this group.

2.—In consequence of the ruling of the Board that a holding entered for competition must be one piece of land only, the rules will require to be amended to make this plain as at present the rules do not read so.

JNO. BARCLAY, Sec.

After discussion, it was resolved that St. Ann, Manchester and Trelawny having the advantage of Local Instructors and good Local Societies, should be the three parishes

On the suggestion of His Excellency the following addition was made to rule two :—" The land entered for competition must be one piece, not divided by another person's property intervening ; but a road or gully may run through it."

Mr. Williams moved, " That the marks for House and Sanitary Conditions be raised from 5 to 10, and the marks for Permanent Crops and Catch Crops reduced by 5 respectively." Mr. Craig seconded and this was agreed to.

Banana Fibre.

The Secretary submitted further letters from Mr. James Anderson, Arbroath, to Messrs. Elder Dempster & Co., and forwarding specimens of the fibre he had made from the specimen of trunks and leaves of the banana sent on to him in November. Mr. Anderson reported:— "The samples that I have already got came in fine order. They consisted of a few ribs of the leaf and four sections of trunk. There is plenty of fibre in the trunk to make it worth all attention, and I expect by sheathing free from the core not less than 12 per cent. of fibre. * * In Jamaica, I see, they think there is not more than 1 per cent. of fibre which is not worth more than £3 per ton, while even old ship rope if not too much worn and with tar on it, sells for paper making at £7 or £8 per ton. * * I have put results in the "Dundee Advertiser" to-day as it might awaken some interest in banana fibre. Every portion of it may be profitably used, both the trunk and mid-ribs of the leaves. The trunk when green I consider has at most 94 per cent. of loss and 6 per cent. of fibre."

The Secretary stated that he had a letter from Sir Daniel Morris on the subject, in which he stated that he was having careful experiments made in Barbados in taking out the fibre from the stems and the leaves of bananas, the resulting fibre to be valued in the market, and all the information secured would be sent to us. It would perhaps therefore be better to wait until these results were received. This was agreed to.

Letters.

The following letters from the Colonial Secretary's Office were submitted:—

1.—*Re* Contagious Diseases of Animals Law.

11,096-13,552.

Colonial Secretary's Office, 19th December, 1905.

SIR,—I am desired by the Governor to acknowledge the receipt of your letter No. 2,955, dated the 14th inst., submitting the report of the Live Stock Committee of the Jamaica Agricultural Society on the proposed Contagious Diseases of Animals Law, which you state had been adopted by the Board of Management of the Society.

2.—In view of the opinion expressed in the report referred to, the Government do not propose to introduce the Bill next Session.

I have the honor to be, Sir, your obedient servant,

T. LAWRENCE ROXBURGH, Asst. Col. Sec.

In connection with this the Secretary submitted the following report:—

When I was at a meeting of the local Branch Society at Appleton on the 11th inst. one man asked the cause of so many of his cows dying, he said that he had lately lost 10 cows and a bull in a week, and a few years before had lost a good many head suddenly. I asked him to describe the symptoms and recognised the trouble to be apparently Anthrax. On further questioning, I found that this man had simply left the carcasses lying to decay, and he stated the something that was wrong with the beasts must be very bad because the 'John Crows' would not even eat them. I explained to the meeting the seriousness of the trouble, how contagious it was and how infection could be carried for a long distance by 'John Crows' and dogs, and the wickedness (though done in ignorance) of leaving the carcasses to infect that field so completely that stock could not go there without certain danger for perhaps years, and how everybody's stock for miles were liable to infection. I advised that the carcase of every beast and bird that died should be completely burned.

Now although we have of late years been very free from epidemics among stock, and though last year the continuous wet weather predisposed stock to

such troubles as Anthrax and Glanders, is it not trusting too much to chance or our luck not to dispel ignorance in more specific fashion than we are now doing and guard against the spread of disease, which if it once got a start and circumstances chanced to favour its spread at that time, would be dreadful in results—far more so than the Tick Fever which caused such heavy losses some years ago? And we must remember that Anthrax is communicable to human beings. If I chance to strike against a case like this on one visit, how many cases may be happening among small penkeepers? The large penkeepers generally know this disease at once and guard against infection for their own safety, but in the more backward districts. I am afraid there are very many—in these days when so many small cultivators have taken to raising some cattle—who know little about the diseases animals are subject to. I make the suggestion that pamphlets giving a clear, simply-expressed, description of a few infectious diseases, which occur here among stock be issued, and that although the proposed bill of a Contagious Diseases Animals Act was not considered workable in this country, still that is not to say that something should not be done. Where so many people are very conservative and inclined to fatalism, we should proceed little by little. I suggest that, after the issue of the pamphlets or bulletins mentioned, make it inexcusable for people not knowing the diseases and what to do about them, we should recommend to the Government to frame a simple law, making it compulsory for owners of cattle dying suddenly in numbers more than the usual rate of mortality, to report the matter to the police, stating how they disposed of the carcasses, the Inspector of Police to report to the Government, who could judge from the report whether the particular stock owner's case was a fit subject to be reported upon. If so, a penkeeper of standing in the neighbourhood could be asked to make a report and only if the case was a serious one, or if there were many cases occurring in the neighbourhood, would a Veterinary Surgeon be then required to pay a visit and give instruction to the owners how to deal with the disease; and he would then make a report. It should be made compulsory for all dead carcasses to be immediately burned and which the police could enforce.

I mentioned this matter shortly at a meeting of the Board of Agriculture yesterday in connection with the Contagious Diseases Animals Bill, and I was asked to intimate here that members of that Board would attend the Half-Yearly Meeting to-day to confer with you on the subject, if you agree,—so that the matter might be settled quickly.

JNO. BARCLAY, Sec.

It was decided to defer the discussion of this matter until the Half-Yearly Meeting to be held later in the day.

Orange Industry. 2.—Enclosing copy of letter from Mr. T. Gordon-Smith, Montego Bay, with regard to the Orange Industry, together with copy of reply which covered the points raised and which was read as follows:—

11,014-13,085.

15th December, 1905.

SIR,—I have received and laid before the Governor who has read it with great interest, your letter of the 3rd November.

2.—The first thing that strikes His Excellency is that the complaint of which you are the exponent is confined to one kind of produce only, viz., oranges.

3.—Badly cured tobacco, unripe coffee, badly cured cocoa, unripe mangoes, cotton and coconuts, maize that will not keep, rum unworthy of Jamaica containing less than 75 per 100,000 parts of others may all be exported—(subject to the usual civil penalties on dishonest trading, or imperfect performance of orders) without creating any public scandal in Jamaica or abroad or any appeal for Government interference, but in the case of oranges there is a perpetual appeal for interference.

4.—What is the essential difference between the case of oranges and that of those other commodities?

5.—For one thing, oranges delivered early in the season command (like early peas, potatoes and strawberries in England), an exceptionally high price; and it is also possible that the consumer may in consideration of early delivery, be quite willing to accept a small and less ripe product which he would reject with

scorn later on when larger and riper produce is available. This is certainly the case in England with early rhubarb, early potatoes and early strawberries. Why should it not be the case with oranges?

6.—It is no doubt very provoking for a producer whose fine oranges ripen late to see far inferior fruit command a higher price—but “*de gustibus non est disputandum*.”

7.—Now taking the cases so graphically described in your letter: Mr. Blank's American Correspondent (or principal whichever he may be) receives a quantity “of the most unfit fruits you ever saw.” American business men and consumers are usually able to protect themselves against anything but a mammoth trust.

8.—Either the American wants for the moment “the most unfit fruits you ever saw,” or he does not.

In the first case no harm is done to any one and no Government interference is needed.

In the second case the American declines to pay, pleading an unfit consignment. Mr. Blank then learns that dishonesty does not pay and he passes on the lesson to Mr. Brown.

In this case too no interference by the Government is needed.

9.—But if Mr. Hardup's case is a typical one, it must be inferred, that season after season the Jamaica small producer very reluctantly, is cajoled into selling something vile—“the most unfit fruits you ever saw” and that he really can't help himself.

If this be really the case, and the fruit producers are all of one mind about the matter, one would have expected that long ago an “Orange Producers Association” would have been formed with power to control such matters, but instead of that we have an annual series of helpless appeals to Government to do badly, because clumsily and imperfectly, what the growers ought to do for themselves perfectly.

“The business of life is an essential part of the practical education of a people; without which book and school instruction, though most necessary and salutary, does not suffice to qualify them for conduct and for the adaptation of means to end. A people among whom there is no habit of spontaneous action for a collective interest—who look habitually to their Government to command or prompt them in all matters of joint concern, who expect to have everything done for them except what can be made an affair of mere habit or nature—have their faculties only half developed—their education is defective in one of its most important branches.”

10.—The remedies which have been suggested are: (a) A close time during which export is to be prohibited.

This would tend to deprive the possessor of an orchard which produces ripe fruit earlier than other orchards of his natural or, it may be, acquired advantage.

(b) To suppress the small license holder or produce runner

This would prove ineffective, as persons who really wanted early oranges would arrange agencies to get them if no produce runners were licensed.

(c) A Government inspection: Unless the Inspectors had varying standards being very indulgent with early produce and very rigid with late produce, would do serious harm to legitimate trade, and popular outcry would soon be concentrated against them. But if they had a varying standard in what would they be an improvement on the existing varying standard which is simply that of trade requirements?

I have the honor to be, Sir, your obedient servant,

(Signed), H. CLARENCE BOURNE, Col. Sec.

Banana Insurance.

3.—Letter from Mr. Christopher Head, London, to Mr. Bourne, re Banana Insurance

as follows:

No. 13,336.

6, Clarence Terrace, Regent Park, N.W.

I have had some correspondence within the course of the year with Mr. Bell, the Administrator of Dominica, about a scheme for Insurance against Hurricanes. Possibly the rumour of it has reached your ears as he appears

to have disseminated it widely. I originally suggested it to him at the beginning of the year and he has got together statistics and written a pamphlet on the subject. However, what is more important is that I have succeeded in getting a rate quoted for insurance of this nature on the buildings, cultivation and crops of the plantations. At present the rate we are quoting is confined to the Island of Dominica, but if we can get sufficient information about the other islands, we can extend the insurance if it is wanted. If you think it would be any good starting the scheme in Jamaica, would you be so very kind as to get a few of the necessary statistics? What we want to know is :—

- 1.—What hurricanes have visited the island during the last, say, 30 years.
 - 2.—What is the extent of the damage, (a) over how large an area ; (b) the nature of the damage done.
 - 3.—Figures, if possible, of what would be the loss suffered by the planters to buildings, trees, and crops.
 - 4.—Statistics of the exports from the island of produce for the last 30 years.
- By “produce” I mean everything except cereals and bananas, which underwriters will not cover. With regard to the latter, if reliable statistics can be got of the actual damage done by hurricanes to banana plantations, no doubt a rate could be quoted, unless it should turn out that the damage is so severe that underwriters would hardly be justified in insuring except at a prohibitive premium. I suppose when one comes to think of it the best ability in your island is employed in the cultivation of bananas. The rate quoted for Dominica is in most cases 30s. for insurance against hurricanes and all damage done therefrom, and 10s. for insurance against earthquakes or volcanic eruptions. Probably, the latter would not appeal to the people of Jamaica. Underwriters will only insure against an exceptional circumstance, such as a hurricane, and will on no account insure against a gale, blow or a washdown, although the damage to the crops and even the trees may at times be considerable. When I say they will not insure, I mean they will not do so at a premium which planters could afford to pay.

If you think it would be any good extending this business to Jamaica, possibly you could put us on to some reliable people who would act as our agents for the business. Please understand I do not want you yourself to put yourself to any great trouble over getting these statistics, but no doubt you can find some one who can do it properly, and to whom we would gladly give something for his trouble. I should be very glad if you could help me.

(Signed), CHRISTOPHER HEAD.

The Secretary stated that a letter from the Colonial Secretary's Office had been sent to the Board in October last, enclosing a copy of Mr. Hesketh Bell's scheme, and that the matter had been held over for consideration. After discussion, it was resolved to refer the matter to the Staple and Minor Products Committee, and to add the members of the former Committee on Banana Insurance. Dr. Pringle and Mr. Craig, and the Secretary was instructed to ask the Colonial Secretary if he would refer back the papers on the subject to him.

Chemist. Matters relating to the Island Chemist were held over until next meeting.

Instructors' Reports The Secretary submitted the Instructors' Reports from which extracts of interest would be published in the Journal.

Secretary's Reports. The Secretary submitted his own reports on visits made, and on Black River Show, as follows :—

I attended Black River Show on Wednesday, 10th January, and helped all I could in arranging the Agricultural Products and in judging certain sections.

It was not a successful Show, the only section which was good being the cattle, and even in this there was not the variety of last year. The Herefords were this year the best. The horse competitions were not interesting, for although the quality of the horses shown was as usual, high, competition was too limited. Other stock, sheep, pigs and goats were moderate, with not much competition, either.

The poultry section showed good standard birds of the best breeds, Plymouth Rocks, White Wyandotte, Buff Orpington, Black Minorca, Indian Games, all being represented, but there was little competition, and so disappointing to judge, and to the public.

The Agricultural Products Section was actually poor in almost all departments, in the same way—not much competition. The corn made the best show, and that was good. I noticed that white corn is being widely grown in St. Elizabeth and chiefly for making cornmeal. I think the bearing, however, is not so good as our ordinary yellow corn.

It would have been advisable not to hold this Show as so many circumstances militated against its being a success. First, it was postponed from November 30th—it is commonly known that few things that are postponed ever turn out a success here; it was not long after Christmas when money is scarce, and the Races were to be held on the day after; it was hardly known in St. Elizabeth that the Show was really to be held; and there was no grant from the Parent Society. This last certainly caused people to lose practical interest as subscribers and supporters generally. If what is looked upon as Headquarters, take no controlling interest, then what is the need of ordinary individuals, not being exhibitors, taking a philanthropic interest? And so there was a great lack of interest and support among the larger people. Those who know the country, know that with the small settlers special effort is necessary to make them take particular interest in any subject, and before any Show an Instructor should go round and stir them up, explain the Prize List and tell them how to prepare exhibits and how to show them. This has been done in previous years in Hanover, Westmoreland, St. Elizabeth, St. James and elsewhere with the best results.

It is regrettable that the Black River Show should have fallen away so much from the high standard of its two previous Shows.

JNO. BARCLAY, Sec.

I beg to report that I have made the following visits since the last meeting of the Board:—

On Monday, 8th January, I attended a meeting of the Christiana Branch to introduce Mr. Robert Thomson who lectured on Oranges and Coffee. On Wednesday I was engaged at Black River Show. On Thursday I attended the Annual Meeting of the Appleton Branch, and delivered a lecture before a very good audience. Mr. J. M. Farquharson of Appleton presiding. The questions asked after the lecture were mainly affecting stock in connection with which I have made a separate report, the matter concerned (suspected cases of Anthrax) and leaving carcasses to rot being in my opinion serious.

On Friday I visited cultivations of Oranges and Lemons with Mr. Coke of Mile Gully, in connection with which an experiment will likely be tried to get lemons (for which at present there is no market) to fruit in the summer months when I am confident of a good market. I had no idea that lemon trees here could grow so luxuriantly, and keep so clear of scale insects, moss and lichens, and fruit so heavily with beautiful, clear-skinned lemons, all without particular attention, as those at Martin's Hill, Manchester, all showing climate and soil to be naturally adapted to lemon-growing. At four o'clock in the afternoon I lectured at Devon, under the auspices of the Christiana Branch, on Potato Cultivation before a good attendance of cultivators, Mr. E. A. Bailey of Devon presiding. I am very hopeful that the people there will now go more systematically into the cultivation of potatoes than hitherto, and if they follow out my suggestions will make steady profit in that industry for which they have already proved by results, their climate and soil to be exactly suited. I urged them to co-operate to import their seed potatoes in bulk and not to trust to buying single barrels of table potatoes in Kingston just when they wanted to plant; not to plant the same land twice in immediate succession or they would

certainly have trouble with disease and grubs ; to apply manure where the land was not fresh, and I explained how pasture sod was first rate land for potatoes and how it was best for them to market their potatoes in co-operation. With an importation of about 8,000 barrels of potatoes per annum at a cost of nearly £4,000 and only a local production of 500 barrels, I said it was hardly time to fear over-production. Besides the consumption would increase substantially when a regular supply of really good potatoes was provided. I understand the Loan Bank at Christiana may make the first practical application of its principles by fostering this potato industry ; at least I advised that this would be a good practical opening to make a test of what may be done by Loan Banks.

JNO. BARCLAY, Sec.

New Members The following new member was elected :—

Mr. T. L. Willems, Trinidad.

The meeting adjourned till February 21st at 11.30 a.m.

HALF-YEARLY GENERAL MEETING.

THE Half-Yearly General Meeting of the Jamaica Agricultural Society was held at the Office of the Society on Wednesday, 17th January, 1906, at 11.30 a.m. at the close of the meeting of the Board of Management. Present : His Excellency Sir James Alexander Swettenham ; Hons. H. Clarence Bourne, W. Fawcett, Dr. Pringle and R. P. Simmonds ; Messrs. J. Cameron, D. Campbell, R. Craig, R. H. Hotchkin, W. Cradwick, E. Arnett, C. E. deMercado, J. W. Middleton, A. Husband, R. S. Gamble, J. Peters, and the Secretary, John Barclay.

The minutes of the previous Half-Yearly General Meeting held on 16th August, 1905, were taken as read and confirmed.

The Secretary's report which was in the hands of those present was taken as read as follows :

I have the honour to submit my report for the half-year to the 30th September, 1905 :

BOARD OF MANAGEMENT.—Three Meetings of the Board only were held in the six months, there being no meetings in April, June and July. The individual attendance was as follows :—His Excellency Sir J. A. Swettenham, President, 3 ; Hon. Lieut.-Col. C. J. Ward, Vice-President, 1 ; Hon. Dr. Pringle, Vice-President, 2 ; Hon. Wm. Fawcett, Deputy Chairman, 3 ; Hon. H. Clarence Bourne, 2 ; Hon. L. J. Bertram, 1 ; Bishop Gordon, 2 ; J. Allwood, 1 ; John Cameron, 0 ; Dugald Campbell, 3 ; Robert Craig, 3 ; C. A. T. Fursdon, 3 ; Ralph Hotchkin, 2 ; E. W. Muirhead, 2 ; Hon. H. T. Ronaldson, 1 ; J. Shore, 0 ; Hon. R. P. Simmonds, 0 ; R. A. Walcott, 2 ; J. R. Williams, 1 ; The Secretary, 2. The Secretary was on leave of absence from the beginning of April to the end of July. Sir Daniel Morris was present at the Meeting in September.

The general subjects dealt with by the Board of Management were as follows :

IMPORTATION OF INDIAN CATTLE.—The Board asked the Government for permission to import from India by coolie ships, Indian Cattle required by the Society or private persons for the purpose of improving that breed in Jamaica. The reply given was that importation of a moderate number of cattle by coolie ships would be allowed.

REGULATIONS FOR EXPORT OF FRUIT.—Enquiry was made of the Departments of Agriculture in Canada, South Australia, New South Wales, New Zealand and Tasmania, as to the regulations governing the export of fruit. The replies were published in the "Journal," Vol. IX. June 1905, page 228.

IMPORTATION OF CATTLE AND FRESH MEAT.—His Excellency the Governor called attention to these importations, and the Secretary was instructed to make enquiry of the hotels why it was considered necessary to import fresh meat. The reply from one hotel was that they had not been able procure enough fresh meat of such a quality as would warrant them putting it on the table of a first class hotel. The Board pointed out that the best of meat could be got here if arranged for.

BANANA FIBRE.—Mr. James Anderson, Arbroath, having written that he had a cheap machine which could extract the fibre from the banana stems and leaves on the spot, the Secretary was instructed to send samples of the stems and leaves of bananas for Mr. Anderson to experiment with and report.

SEVILLE ORANGES.—As there was reported to be a great scarcity of Seville Oranges in Britain owing to a disease having broken out in Spain, the Secretary was instructed to send sample barrels and boxes of our Bitter Oranges to Glasgow and London to have them tested. The results have not yet come to hand.

SALE OF SOCIETY'S LIVE STOCK.—It was resolved to sell the live stock belonging to the Society in order that fresh stock might be imported with the funds accruing therefrom.

ELDER DEMPSTER CONTRACT.—The Government having written to Messrs. Elder Dempster & Co., that the time had now come when it was expedient to press again for the appointment of the Instructors, contemplated by the Contract, and inviting that Company to appoint them and notify their names and addresses for publication, the whole matter was referred to the Board for their consideration, and it was unanimously decided that the Government be respectfully asked to write Messrs. Elder Dempster & Co. asking them to insist on the appointment of these Instructors or to invite Messrs. Elder Dempster & Co. to suggest an equivalent.

ELDER DEMPSTER & Co.'s TIME TABLE.—The Government having written to Messrs. Elder Dempster & Co., bringing to their notice that the Time Table submitted to the Government extended only to the 18th March, 1902, and ever since that date there had

been no duly accredited Time Table, and asking them to submit for their approval a new Time Table, specifying the respective times of leaving Avonmouth, Messrs. Elder Dempster & Co. replied that the "Port Kingston" was now doing the passage in 10 to 10½ days, but if it were necessary to fix times of departure and arrival, they would have to reduce her speed to the same level as the others. The Board was asked to consider the matter, and agreed to suggest to the Government to reply that the other steamers should be brought up to the speed of the "Port Kingston."

ORANGE INDUSTRY.—His Excellency the Governor having referred to the Board a letter from Mr. C. R. Isaacs, Shooter's Hill, proposing to fix a close season for shipping oranges, it was resolved to hold a Conference of those most interested in the Orange Industry to consider what might be done generally to improve the state of the Orange Industry.

GENERAL MEETING.—The Second Half-Yearly General Meeting was held on Wednesday, 16th August, 1905, when the Secretary submitted his Report together with Statement of Accounts for the year 1904-05. Sir Daniel Morris was present and gave an interesting discourse on the cultivation of Cotton and Rubber, and spoke about arrangements for holding the West Indian Agricultural Conference in Jamaica in January, 1906.

LIVE STOCK.—The Pony Stallion "Sir Gerald" was stationed for the year 1905 at Darliston, in Westmoreland, but received little custom there on account of some local opposition. During the six months under review, the Aberdeen-Angus Bull "Alaska" was stationed at Pepper Pen, St. Elizabeth. The Aberdeen-Angus Bull "Enterprise" has been kept by Mr. Craig at Chapelton; and the Shorthorn Bull "Crystal Ray" has been with Mr. A. C. L. Martin, Great Valley, Manchester. The King's Hereford Bull "Sylvester" has been stationed in St. James, where he has been very much appreciated, and the Shorthorn Bull "Desmond" was first at March Pen, Spanish Town, and latterly in St. Andrew. The Board has resolved to sell the Society's live stock so that with the proceeds fresh stock may be introduced.

LOCAL INSTRUCTORS.—Mr. E. Arnett has been appointed Local Instructor for St. Ann in place of Mr. R. L. Young, resigned, in addition to his position as Local Instructor for Lower Trelawny. It was arranged to transfer Mr. Arnett for three months to Portland in connection with the Prize Holdings Competition there, and he has been already in Portland for two months out of the three. Mr. Hirst continues to instruct in Upper Trelawny and Upper Clarendon, and Mr. J. T. Palache in Manchester.

SHOWS.—Only the following Shows were held during the half-year :—St. Mary at Port Maria on 29th June; Port Royal Mountain Show held at Hope, St. Andrew on the 5th July; St. Ann's Show at Thicketts Pen, St. Ann, on 1st August. No grants in aid have been given this year owing to want of funds.

PRIZE HOLDINGS COMPETITION.—The Competition for prizes for best kept small holdings is being carried through this year in St. Catherine, Clarendon and Portland.

JOURNAL.—The issue of the Journal is now 3,500, at the same date last year it was 3,240. The articles printed are on subjects suggested by current agricultural events of importance and enquiries made by correspondents.

BRANCH SOCIETIES.—The following local Societies are affiliated, the number of members is added :—Above Rocks, 92 ; Aberdeen, 48 ; Æolus Valley, 32 ; Appleton, 50 ; Balaclava, 50 ; Bath, 64 ; Black River, 80 ; Boroughbridge, 30 ; Clarksonville, 14 ; Cornwall, (Central), 114 ; Clarendon, (North-East), 38 ; Mid-Clarendon, 49 ; Christiana, 54 ; Duan Vale, 109 ; Deeside, 42 ; Davyton, 35 ; Fairfield, 36 ; Fair Prnspect, 31 ; Grove Town, 26 ; Hanover, 240 ; Hampstead, 60 ; Lamb's River, 49 ; Manchester, (Central), 50 ; Manchester, (East-Central), 31 ; Manchester, (North-West), 30 ; Manchioneal, 72 ; Mount James, 60 ; Mile Gully, 48 ; Newmarket, 66 ; Ocho Rios, 44 ; Port Maria, 71 ; Porus, 25 ; Port Royal Mountains, 115 ; Portland, (Central), 45 ; Rio Minho Valley, 34 ; Savanna-la-Mar, 79 ; Springfield, 62 ; St. Ann. 77 ; St. Christopher, 60 ; St. George's, 91 ; St. John's, 14 ; St. John's, (Upper), 30 ; St. Peter's, 60 ; St. Andrew's, (Northern), 31 ; Santa Cruz, 52 ; Trelawny, (Central), 24 ; Trelawny, (Upper), 42 ; Trinity Ville, 61 ; Thompson Town, 57. Total 49, with a total membership of 2,669. Of these the following have been affiliated during the past six months :—Hampstead, Rio Minho Valley, and Thompson Town.

DIRECT MEMBERS.—The number of Members on the Roll of the Parent Society is 534, of these 22 have been elected during the past six months.

OFFICE WORK.—The work of the Society has gone on smoothly. I was on leave of absence from 4th April until 28th July, acting part of the time as one of the Commissioners for Jamaica at the Colonial Exhibition held at the Crystal Palace London. There were 1,255 letters received during the past six months, and 2,074 despatched on the following subjects :—Board of Management, 62 ; Branches, 106 ; Bulls, 85 ; Small Stock, 102 ; Cattle and Horse-kind, 42 ; Stallion, 30 ; Poultry, 72 ; Cotton, 25 ; Exhibitions, 260 ; Fruit, 37 ; Journal, 152 ; Instructors, 48 ; Prize Holding, 109 ; Potatoes, 53 ; General Products, 119 ; Subscriptions, 232 ; Shows, 222 ; Seeds, 40 ; Sundries, (including information about Jamaica), 278.—Total 2,074.

JNO. BARCLAY, Sec.

The report was adopted.

The matter of a Contagious Diseases Animals Law referred from the meeting of the Board of Management was brought up by Mr. deMercado and Mr. Middleton as representing the Board of Agriculture, and it was resolved to discuss the matter in Committee. As no other matter was brought forward to be discussed at the Half-Yearly Meeting, this was adjourned.

The members of the Board of Management, together with Mr. deMercado, Mr. Middleton and Mr. Bourne, as representing the Board of Agriculture, then discussed the matter of the Contagious Diseases among animals, with a view of advising the Government how to frame a law suitable to their requirements. After discussion, the matter was submitted to a special committee, consisting of Messrs. H. H. Cousins, J. W. Middleton, C. A. T. Fursdon of the Board of Agriculture, and members of the Live Stock Committee, with the addition of Messrs. John Cameron and R. P. Simmonds, with instructions to get the best evidence concerning the extent Anthrax and other contagious diseases occurred in the island and amend the existing draft Bill so as to make it acceptable to the government and the public.

THE WAY TO IMPROVE THE SMALL SETTLERS' HOLDINGS.

By Chas. L. Rennalls, being Prize Essay Winner of Port Royal Mountain Show, 5th July, 1905.

THE small settlers' holding is his home, the word home is dear to every body in every part of the world, whatever be his nationality, color or creed. Rich men have great castles or large houses with beautiful surroundings for their homes; poor men dwell in humble cottages. But whether it be the lordly mansion of the aristocrat with its hundred apartments or the single-roomed mud hut of the squatter, each owner looks upon his home with pride, and the ambitious man is always trying to improve it in some way or other.

The majority of the homes of the small settlers in Jamaica stand badly in need of improvement.

How then can the small proprietor best improve his holding?

THE HOUSE.—The house is the centre of the home. In Jamaica there are many houses that are a disgrace to civilization. The quality of the house is nearly always an index to the mind of the occupant. Indeed the quality of the house depends far more on the intelligence than on the means of the owner. Eighteen hundred years ago the houses of Britain were mud-huts covered with turf. Since then, the civilizing influences of education have been spreading among all classes of the people, and to-day the stately homes of England are the pride of Englishmen. In Jamaica we find that in districts where education is more widely diffused, the houses are of superior quality to those in districts where education is more backward. In these backward districts, there are still too many single-roomed ground-floored houses. These are a menace to the health and morals of the rising generation. Many of the diseases which affect the children in these districts are fostered by the damp ground floor and walls of these houses. Our hope for improvement in this direction lies to a great measure in the education of the people. Every settler should try to improve his home. If you are about to build a house, make up your mind that it shall be a decent wooden-floored house with at least three apartments. Assuming that you have such a house you should endeavour to keep it as attractive as possible, both inwardly and outwardly. It is wonderful what a difference a day with the lime can or paint brush can make in the appearance of a house. It is in the house that the greater part of the time of the children is spent, there should therefore be in it such things as will interest children, and help to form characters. A few interesting books, bright pictures, a vase of flowers and the like are things that will help to brighten and improve the home.

THE FIELD.—The field is that portion of the holding devoted to the cultivation of crops. The average settler has a way of leaving his holding uncultivated and travelling from four to twenty and sometimes more miles seeking new lands. He holds an idea that the same plot of land cannot be successfully cultivated for more than three or four years. Before he can improve his holding, the settler must improve his ideas about the soil and become more acquainted with the elementary principles of agriculture. What a waste of time and energy to travel all that distance day by day to seek new land, when an application of the elementary principles of agriculture would convert the waste lands around their home into almost virgin soil. Besides the cultivation of far-away fields is attended with so many disadvantages, not the least of which are the depredations of the prædial thief. The chief staple crops of the small settler are, and will always be coffee and cocoa. The cultivation of these products is well known, yet there are points on which some might improve with advantage.

COFFEE.—There are some who still allow their coffee to grow to unlimited heights, almost wild and straggling, because they hold the idea that in that condition they yield a larger crop. But even if they did yield a larger crop, which they do not, the advantages of having well trimmed coffee trees would more than compensate. Leguminous trees such as tamarind, guango, etc., form ideal shade trees for the coffee. Compare the coffee trees under or near a large spreading tamarind tree with those more remote; the contrast is remarkable both in the colour of the leaves and in the size of the ripened berries. All leguminous plants have this power of stimulating the vegetation around them. It is impossible in this short paper to go fully into the various methods of curing, but I cannot too forcibly condemn the slovenly method of drying adopted by many settlers; nor can the best result be obtained by drying coffee in the "double husk," the berries should be pulped and cured on barbecues. If settlers cannot individually procure a pulper their friendly co-operation in procuring one would result in common gain. Coffee properly cured, should be perfectly dry, very hard and brittle if bitten with the teeth, of a fine deep green colour and a strong pleasing smell. When the coffee is picked it should not remain longer than one to two days to be pulped, after passing through the pulper it should remain in a heap for about two days to ferment. When once the parchment is exposed to the sun, it should not be allowed to get wet again.

Cocoa.—The cocoa of Jamaica need not be a whit behind that of Trinidad. In the production of this article the small settler has much to improve. The fruit should be gathered when just ripe, not allowed to over ripen on the trees, then they should be put in the shade for three or four days before they are broken. This seems a trifling matter, but it has a lot to do with the colour and other qualities of the beans. After being in the shade as above mentioned they should be broken in a cleau box or barrel, with sufficient opening for drainage. If the drainage is not perfect the cocoa becomes sour before it is fermented, and the flavour is ruined. The cocoa will be fermented in from five to ten days according to circumstances. You might test the right fermentation by putting your finger in your mouth then in the heap of cocoa, the temperature of the cocoa should be about the same as that of the mouth. After fermenting the cocoa should be washed and dried. The drying should be done on wooden forms, not on barbecues. In the matter of handling and packing fruits the settler stands badly in need of improvement, the present method adopted by the majority is deplorably bad. The picking of unfit fruit, the careless dragging of the fruit from the tree, the tossing about and otherwise rough handling, are things which no intelligent man will allow. Fruits are very delicate things and should be handled with the greatest care, squeezes and bruises affect the keeping qualities as well as the flavour of all fruits. How to improve sour fruit. If you have on your holding an orange tree which bears fruit so sour that it is unfit to be eaten it is unfair to sell such a fruit. You should endeavour to improve it. This you can do by digging a trench around the tree, three or four inches from the trunk, and in this trench put as much ashes as possible. Ordinary wood ash contains over 6 per cent. of potash, an ingredient most necessary in the development of fruits. In the same trench you should throw as much night-water as possible from time to time. You should have on your holding one or more of all the fruit trees and economic trees in the island. What you have not got in this respect you can obtain from the Botanic Gardens at one penny a piece.

SMALL CROPS.—Small crops, such as yams, potatoes, cocoas, etc., seem to be well cultivated by the majority of small planters, but even here a few hints may help towards further improvement. The weeds and rubbish should not be burnt and washed but should be placed in the bottom of the yam holes; by their decomposition there, they add materially to the supply of the plant food in the soil. It would also help you to cultivate more easily if you endeavoured wherever possible to make your yam hills and potato hills in regular rows; the general appearance of your field would also be greatly improved thereby. Above all things the field should be kept scrupulously clear of weeds. Weeds are the same as robbers, it is better to kill them when they are young than when they are old and tough. They rob the plants of food both in the air and in the soil.

THE KITCHEN GARDEN.—There is always a little time on hand between the morning and the evening twilight and the regular working hours which the industrious man can turn to good account, the best way to use these spare moments is in the Kitchen Garden. Lots of land lie round most settlers' houses which are not utilized, these should be laid out in nice little plots for a vegetable garden. Hints for the growing of vegetables have been issued, therefore it is not necessary here to go into details. In the kitchen garden plot should be grown Irish potatoes, Lima beans, carrots, turnips, cabbage, beet root, kohlrabbi, egg plant, onions, tomatoes, pepper, etc. You should bear in mind that vegetables are things that require high cultivation. If you attempt to grow them in the slipshod manner in which the "red peas" and other such things are cultivated, or I should say, grown, the result will be utter failure.

THE FLOWER GARDEN.—"What flower garden for the small settler!" I think I hear some one say, "What do poor people want with a flower garden?" They love flowers, and it is well they should, and therefore they should improve their homes by this method also. The only fault I find in the respect of their love for flowers is that they seem to love them most when grown in somebody else's garden. Hitherto the trouble of growing flowers has been too much for the majority of those who love flowers. It is well that every one should have a flower garden around the house. It improves and brightens the home wonderfully. Give up a portion of the kitchen garden plot, the part immediately in front of the house to the cultivation of flowers. Then you would like to know what to plant. Make a few neat little beds with neat little passages between them. Plant roses. It would be much more interesting to you if you knew the names of the roses in your garden. The following will do well under almost any cultivation and are therefore more suitable for the poor man's garden—Henry Bennett, William Allen, Richardson, Etoile de Lyons, Reina de Portugal, etc. Cuttings from these and a lot more hardy roses may be had for the mere asking, from any neighbour's garden. Then you will require geraniums and other perennial which keep the place always bright with lovely flowers. The more ambitious gardener may also like to grow a few rare flowers, if so you have a long list of annuals to choose from, some of which are:—Aster, Alisium, Balsam, Carnation, Calliopsis, Cosmos, Pinks, Pansy, Phlox, Nasturtium, Petunia, Sweet Peas, Cannia, etc., the seed of any of which you can obtain from your seedsman at a 3d. per pick.

MANURE.—A manure heap is most indispensable to a well kept holding. It is as necessary to a holding as fuel is to fire. The field requires it, the flower garden and kitchen garden cannot thrive without it. The stock on the holding should be stabled and their manure stored up till it is well rotted. A compost heap should also be made from the sweepings, ashes, refuse from the garden, etc.

SHOWS.—The holding of Agricultural Shows is a new feature in the agricultural life of the community, the value of which no intelligent cultivator can fail to appreciate. There is nothing that excites men to action as competition. It arouses dormant energies in men in every branch of trade or industry. The competitions at agricultural shows cannot fail to exert the same beneficial influence on all sensible and rational cultivators who attend them. Those who compete and fail to take prizes should learn where their weakness lies and go away determined to come back successful next time, such a determination if carried into action, cannot fail to improve your holding in many ways, and this is the sincere wish of the writer.

TANNIAS OR COCOES.

MR. O. W. Barrett, formerly Botanist and Entomologist for Porto Rico Experiment Station, has made investigations on this subject and has published results of his undertaking in the West India Bulletin No. 2. He says that the Tannia is one of the world's oldest cultivated crops, it seldom flowers and never produces seed. It is a native of tropical America and is scarcely known outside of this district. He differentiates between the West India Tannia and the Tannia Taro or Talô which is the principal starchy food used in the Pacific Islands. He goes on to say that in chemical composition, Tannias do not differ materially from Irish Potatoes and Sweet Potatoes, and contain about 26 per cent. of carbo-hydrates (mainly starch) and 1.7 to 2.5 per cent. of protein. When 6,000 to 12,000 plants are set out to the acre, the yield is from 7 to 15 tons of tuber per acre in ordinary soils. Tannias take from 8 to 12 months to mature.

Now to get 12,000 plants per acre, they would have to be planted closer than 2 feet by 2 feet, and if they were so closely planted they would certainly never yield the large crops mentioned. The ordinary distance in Jamaica is from 3 feet by 3 to 4 by 4. the wider distance on the more fertile soils. The Tannia flowers here commonly, but we have never observed it seeding.

Mr. Barrett goes on to say, in addition to their value as a food, Tannias may be utilised as a source of starch and flour, from which it is considered likely to rival the cassava. Experiments indicate that 20 to 25 per cent. of starch is readily obtained from their roots.

We do not think that Tannias will ever rival the cassava as a source of starch in any way, because while the cassava thrives on what we in Jamaica consider poor soils, at any rate light, dry, soils, and there gives a large return, Tannias are most particular as to the soil they will flourish in, and really only give a large return per acre on deep, moist, soils, rich in humus—at least that is the Jamaica experience.

HINTS IN SLAUGHTERING ANIMALS FOR FOOD.

It is important that an animal intended for slaughter should be kept off feed for from twenty-four to thirty-six hours. If kept on full food, the system is gorged and the blood loaded with assimilated nutrient is driven to the extremities of the capillaries. In such a condition it is impossible to thoroughly drain out the veins when the animal is bled, and a reddish coloured, unattractive carcass will be the result. Food in the stomach decomposes very rapidly after slaughter, and where the dressing is slow gases generated often flavour the meat. Water should be given freely up to the time of

slaughter as it keeps the temperature normal and helps to wash the effete matter out of the system, resulting in a nicely flavoured carcass.

The care of animals previous to slaughter has considerable effect on the keeping qualities of the meat. It is highly important that they be not excited in any way sufficient to raise the temperature of the body. Excitement prevents drainage of blood vessels, and if extreme will cause souring of the meat very soon after dressing. In no instance should an animal be killed immediately after a long drive or after a rapid run about the pasture. If heated by such cause, it is far better to allow it to rest over night before killing than to risk the meat spoiling. The flesh of an animal that has been overheated is usually of a pale color and very often develops a sour or putrid odour within three or four days after being dressed. It is also essential that the animal be carefully handled so as not to bruise the body. Bruises cause blood to settle in that portion of the body affected, presenting an uninviting appearance, and often cause the loss of a considerable portion of the carcass. A thirty-four hour fast, plenty of water, careful handling, and rest before slaughter, are all important in securing meat in the best condition for use, either fresh or for curing purposes.

The same caution should be observed about exciting or heating hogs before slaughtering as is noted in discussing the dressing of beef. The more quietly they are handled, the better. In catching and throwing them, bruising must be avoided.

Dressing Sheep.—Much of the sheepy flavor of mutton comes from the generation of gases in the stomach after the sheep is killed. For this reason they should be dressed as rapidly as possible. A platform six or eight inches high is a convenient thing to work on, and aids in keeping the blood away from the body, insuring a cleaner carcass. A clean, dry, place is necessary for neat work. Water or blood on the wool makes it very difficult to dress the animal nicely.

Treatment of Hides.—The hides of cattle represent considerable value if properly salted. They should be spread out flat, hair side down, the legs, etc., stretched, and all parts well rubbed with common salt. Particular pains should be taken to reach all surface of the skin. If more than one skin is to be salted, they should be spread one on top of the other, and salted as spread, with the hair side down. Where only one hide is to be handled, the legs and head should be folded in and the hide rolled up as soon as salted. Enough salt should be used to cure the hide thoroughly if it is to be kept for any length of time. Ten to twelve pounds of salt will be sufficient for an ordinary hide. Many hides are spoiled for want of going through a process of dressing as they do not keep.

Cucumbers will much improve by being placed with the stalk downward in a jug of water for some hours before using them.

STOCK NOTES.

SHEEP.—The Department of Agriculture, U.S.A., reports that there were in round numbers ninety millions fewer sheep in the world at the beginning of 1905 than there were in 1873, making an average yearly decrease of about three millions. Yet the demand for wool and mutton is greater now than ever it was. One reason for the decrease is that there are fewer waste places on the earth now than what there were, and great flocks of sheep cannot be raised in such numbers and as cheaply as formerly, when there were hundreds of square miles of waste lands available for them in different parts of the world. This however gives the mixed farmer a chance now of keeping a moderate size flock of sheep at a profit.

* * *

JEYES FLUID.—Jeyes Fluid (called Creolin in the United States) is one of the best all round stock medicines externally and internally that we have. It is a good dressing for ticks, lice, and sores of any kind. It is the very best vermifuge to clear worms out of horses and pigs and equally good for all those mysterious troubles grouped under the name of "fowl sick." Two drops of Jeyes in a teaspoonful of water two to three times a day, followed up by half a teaspoonful of castor oil in the evenings, should be given when fowls begin to mope, and their combs get dark. The dose for a horse is one tablespoonful of Jeyes in a pint of soft water, sweetened with a teacup full of "wet sugar" (molasses) given in the morning, the horse having had no food for twelve hours previously. Two hours after the dose a pint of linseed oil should be given to clear out the worms killed or sickened by the dose of Jeyes. For a pig the dose is a bare tablespoonful of Jeyes Fluid in a pint of water given in the morning on an empty stomach, followed six hours later by one half lb. of Epsom Salts in water sweetened with a cupful of "wet sugar."

* * *

PARASITES.—While it is handy to possess the knowledge of the virtues of certain medicinal stuffs and it is essential for stock keepers to know what specifics to compound for certain ailments of stock, yet there are proprietary medicines made up for almost every trouble, with full description of the animal and how to administer the medicine, which may be bought. We are living in an age of parasitism. There is a mite, bug or worm to eat everything in the vegetable kingdom, if man's devices did nothing to combat them. The fruit grower, the vegetable grower, the grain grower, have all to fight against pests or they would have no crops, and it is the same in growing animals from the chicken up to the horse. The Chemical Laboratory that supplies materials for the sprays to kill pests on our fruits and vegetables, also put in the market equally good mixtures to destroy the parasites of animals both externally and internally.

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SHEEP.—Sheep suffer from many parasites. There is the sheep tick, louse, and scab mite externally, and internally the tape-worm,

the lung-worm, the stomach worm, the nodular worm, the liver fluke, and many others. The best dose to kill the internal parasites of sheep is either Gasolene, or Jeyes Fluid, (called Creolin in the United States). Gasolene is the most comprehensive, as owing to its gaseous nature, it to some extent reaches the worms in the nodule and also in the lungs. The dose for a mature sheep is one tablespoonful of gasolene mixed with two tablespoonsful of pure raw Linseed oil and four tablespoonsful of good milk. Of Jeyes fluid the dose is a teaspoonful in half a pint of warm soft water. In giving either of these doses the sheep must be fasted for 12 hours. It is better to give a sheep liquid of any kind by setting it up on its haunches. If given when the sheep is standing on its feet, strangling may follow, and not infrequently when the nose is raised too high, some of the liquid will enter the lungs and cause death. It is also good to keep a covered box of salt within reach of the sheep and in every four quarts of salt mix a gill of spirits of turpentine. The sheep will lick this salt and absorb the turpentine into its system which will help to keep it free of internal parasites.

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FEEDING YOUNG STOCK.—Young stock, we are sometimes told, can be kept on poor pastures until a few months before they are to be put up to fatten. Thinking breeders of stock know very well that there is no economy in such a system. The whole secret of early maturity lies in taking advantage of the remarkable aptitude shown by young stock to assimilate food and grow thereby. Therefore it is the best economy to feed young stock well from birth, at first through a well-fed dam, and later the foal, or calf, or pigs or whatever it is.

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DROUGHT AND MILK YIELD.—That spells of dry weather are a potent factor in bringing about a rapid shrinkage in the yield of milk is acknowledged by every thinking and experienced cow owner, but how much and serious this loss may be is appreciated by a very few. Not only is the quantity seriously affected but marked changes are brought about in the composition of the milk by long continued dry weather, and the consequent scarcity of grass and green fodder generally. This is to be expected for the composition of what grass is available is changed. Whenever a long spell of dry weather prevails in St. Andrew and St. Catherine, where the Guinea grass which feeds the dairy stock of Kingston comes from, then there is a sudden shortage in the milk yield, and if it were tested, often in the quality of the milk itself. This explains shortcomings in butter fat content sometimes.

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IRREGULAR FOOD.—Regularity in feeding and watering stock is almost as of great importance as the food itself. Long fasts are most injurious to the health of the horse. When the work is of such pressing necessity as not to admit of the animal being taken out and fed during the day, the use of the nose-bag must be resorted to. It is a most unusual thing in Jamaica to see horses being fed while still in the shafts, but it is the most common thing in the

United Kingdom to see this ; dray horses and cart horses, horses in light carts are constantly to be seen while standing waiting on loads or while their owners are doing business, comfortably eating out of a nose-bag. The nose-bag will be a good institution to adopt here generally. Many of the ailments of the horses are traceable to a disregard of regular feeding. As a rule the food of the horses is quickly digested, hence the usefulness of feeding frequently. Long fasts from morning to evening while a horse is working, are apt to cause the animal to feed greedily and is a frequent cause of indigestion and consequently poor condition. Another thing very seldom allowed for, because it is not known, is that when horses from districts where tank water is only used for them are brought to a district where hard water is given, this throws the beasts out of condition, induces colic and a staring coat. We have often noticed this.

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BEEF BREEDS.—That the great beef breeds of cattle have very little to choose between them when they are at their best is shown by the results at the great Fat Stock Shows at Birmingham and Smithfield. At Birmingham the choice for the grand championship lay between a Hereford and a Shorthorn, the Hereford, belonging to the King, finally winning. At Smithfield the grand championship lay between a Shorthorn heifer, an Aberdeen-Angus heifer and a Hereford steer, the judging being for the best beef animal, not necessarily the heaviest. The grand championship was awarded to the Aberdeen-Angus heifer, which came from a farm in the north of Scotland and a few weeks before had won the championship at the Scottish National Fat Stock Show at Edinburgh.

POULTRY NOTES.

GESE.—Hitherto geese have been very little kept in Jamaica, and only by a few people for their own use on the table, as there has been no market demand. Now, however, from November until April and especially at Christmas, there is a market for considerable numbers if they are produced. All people living on pens where there is a considerable stretch of common-grass could rear a few geese profitably, as they require less care and attention than any other kind of poultry. They do not require to be fed to anything like the same extent as fowls or even turkeys, as they are a grazing stock, just like horses and cattle, and feed upon grass, especially the more succulent grasses which grow upon the banks of ponds and in damp places generally. The young ones, however, need to be fed a little in the morning, and in the evening, to start them off growing quickly. The parent birds require a mere bite to encourage them to return home at night. Where they have a good run they can support themselves on the grass with the other odds and ends picked up, such as seeds and insects. Only towards the selling period should the grown ones be fed more freely, and the last two weeks they should be stuffed with fattening food as much as they will take.

If the geese has laid her setting which may be anything from four or five to a dozen eggs, seldom more, she will want to set. It will be better that she is not allowed to do this as the goose makes a poor setter and an indifferent mother. It is better then to put the egg under a hen. They will take five weeks to hatch, so the hens should be well fed and watered while setting, and should be occasionally dusted with sulphur or insect powder to keep away lice, or have a piece of sulphur put in the nest. The goslings are exceedingly hardy, but it is better not to allow them to get into the water at first. This is one of the reasons why it is better for a hen to hatch them out and rear them. The goslings should be well fed, starting 24 hours after they are hatched on hard boiled eggs, crumbled fine with bread crumbs, and on cornmeal pudding made simply with cornmeal and boiling water and a little chopped meat, this is the best food for them at first. They should be supplied with plenty of drinking water. If there is water near for them to swim in there is no need to worry if they take to the water, in this climate though it is better to wait until they have feathers, but let them have their swim. As a rule, however, going with the hen they will not want to go into the water unless simply to bathe and drink. Unlike hens and ducks, geese do not arrive to maturity until the third year, but they are long-lived birds, and even reach the age of 30 years. However, it is better to sell all except stock birds, when they are full grown, which is when they are about a year old, but they will put on weight quickly after that, and if there are not too many in-stock it will be more profitable to keep them longer. The stock hens can be kept until they are seven or eight years old, but the gander grows so quarrelsome that four or five years should be his limit. Geese do not need housing at nights when they are well grown, although it is better to do so when they are young to keep them safe from dogs. When they are older they will beat off any intruder.

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THE INDIAN GAME.—There is no better breed for improving the weight and flesh of our fowls in those that have degenerated (provided, of course, the chickens have abundance of food), than the Indian Game. For quality of flesh and a quick addition to weight, although not quite so much as the Indian Game, and where people have a large run, the Old English Game is the finest table fowl known. This breed is a very active one and they are great tick eaters. For quick improvement of the laying powers of fowls and great improvement in the size of the eggs, no breed can compare with the Black Minorca and it is suitable for all districts except those that are very wet with clayey soil. For a general improvement in size and laying qualities, Plymouth Rocks, Orpingtons and Wyandottes are all good birds. There are, of course, very many other breeds existing, but these have been well tested in Jamaica and are suitable to our conditions.

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HATCHING.—The best hatching season is from January to April as a general rule, although in the cooler parts good success can be had in July and August also. As a rule however, eggs are in better

condition to hatch in the early part of the year because the hens moult between August, September and December as a rule, then rest in November and December, so that when they begin laying there is more likelihood of their eggs containing vigorous germs. The bright and active hens that have gone through the moult most easily and have begun to lay soon after moulting, should have their eggs kept for setting as they are evidently hardy and the most profitable fowls.

NESTS —The nest of the sitting hens should be made in quiet retired places, where they will not be troubled by visits of other fowls, and the foundation should be made with earth mixed with lime and wood-ash to help keep away insects. This should be hollowed saucer shape and lined with soft grass, some insect powder or a square of camphor, even cedar leaves or pimento leaves, should be put in the nest to keep away fowl lice which are often so troublesome. The hen should be set at night as she will then sit in a strange place and she should be taken regularly off the nest every day, preferably the hottest time, for about ten minutes at first and later on 20 minutes to half an hour for exercise and to let the eggs cool. This last—the cooling—is a necessary process. Care should be taken to feed the hen well and give her water. It is not economy to have a hen come off a nest with two or three chickens. Her time is wasted in bringing up such a small number. It is a good plan to set two, three or more hens at the same time, according to the number of chickens you intend to rear, so that if bad hatches result, two or more broods can be given to one hen and the others either put off the setting fever or set again; but when a hen is set twice running she should be extra well fed the second time and be kept not less than half an hour off the nest, else she will be worn away to a shadow. It is important that a hen should come off the nest in good condition, because otherwise she would take a long time to recover and begin laying after she throws off her chickens. Well fed hens begin laying within two months after hatching sometimes.

FOOD —This is the season for new corn and when it is half cured, it is responsible for quite a lot of animal troubles not only in poultry but in pigs and horses also. Where a lot of fowls are kept it will help to keep off fowl-sickness (cholera) if the corn is parched lightly before being fed. By this process a good deal of the starch is turned into dextrine, the husk becomes charcoal, and this is good for the digestive organs. It is also good this way for horses.

QUALITY. —There is not so much belief as formerly in the idea that a chicken is a chicken no matter what the breed is. There is quite a good trade being done in standard-bred poultry now, and a hundred are taking trouble in improving their flock where five were doing so a few years ago. All the feeding that may be given to a common hen will not increase the size of her eggs and the number laid materially. These qualities lie in the breeding. The ordinary common hen as commonly raised can never have flesh or the texture of good table fowls like Games or Orpingtons. They can never lay the size of eggs of a breed like Minorcas.

CATTLE.

PART I.

Ascertaining the Age of Cattle by the Teeth.—There are certain points connected with the dentition of cattle which ought to be understood by every practical farmer, but there exists no little confusion among stockowners as to what are the real indications of the teeth of the ox as regards age, and these indications are not nearly so well or so generally understood as they are in the case of the horse, or even in that of the sheep.

Probably there are several reasons which, combined, tend to account for this. One is that in the case of cows a great deal of dependence is placed on the horn marks; another, that popular ideas and actual fact, as regards the periods at which the dental changes take place, are not in accord; and a third, that considerable variation is caused by the nature of the food, as well as by the breed, or peculiar organisation and habits of life of the animals. At the same time, it is by the character and changes of the teeth that age may be most correctly estimated until dentition of cattle is complete and adult age reached. If asked at what age the permanent dentition of cattle is complete, the reply of many farmers would be five years, and it is still quite common for the eruption of a pair of broad teeth to be regarded as indicating the addition of a year of age, after the development of the first pair of permanent incisors at two years old.

This is so stated in the obsolete works on cattle which too often find a place in the farmer's library, but it is quite incorrect, and, except in very backward individuals and unimproved breeds, the average age at which dentition is complete is nearer three years and a half than five years.

In highly-bred and liberally-fed cattle the teeth are produced earlier than when the contrary conditions obtain, as was most effectively demonstrated many years ago by Prof. Brown, whose exhaustive investigations, carried out with animals whose exact age was known, have furnished a standard for the indications afforded by the teeth of all the domesticated animals. It may, therefore, be accepted as a fact that as cattle are better bred and better fed, they exhibit greater precocity in dental changes, as well as in the other qualities associated with early maturity, and cattle which, at two years old, now exhibit all the characters as regards size, weight, and general development which they used to do at three, or even four, years old, will be found as far in advance of their former indications in detail as they are upon the whole, and their teeth, as well as their frame and flesh, are developed earlier.

The regulations of the Smithfield Club in reference to dentition, to which we shall presently have occasion to refer, and which regulations are adopted at all the leading shows, also indicate the

fact that early maturity has been accompanied by an earlier completion of permanent dentition. The ox, when dentition is complete, possesses thirty-two teeth—eight incisors or cutting teeth, and six molars on either side in the upper and lower jaws. An elastic pad of fibrous tissues, covered with mucous membrane, takes the place of teeth in the upper jaw.

The incisor teeth of the ox are not firmly fixed in the jaw like those of the horse, and for this there is a very good reason—it is a provision of Nature to prevent injury—a certain degree of mobility being necessary to prevent wounding or bruising of the dental pad. Those—and there are still many—who associate “loose teeth” with the imaginary malady popularly known as “tail-ill,” or “worm in the tail,” would do well to remember that the incisor teeth of cattle are always loose, and are on that account somewhat easily forced out.

Steel describes the incisor teeth of the ox as “placed with their crowns arranged ‘like the keyboard of a piano,’ their upper surfaces meeting the dental pad,” and adds, “they have very small fangs, and are loosely fixed in the jaw, the yielding being increased by the non-union of the symphysis.” The incisor teeth are distinguished as centrals, or first pair; middles, or second pair; laterals, or third pair; and corners, or fourth pair, the same terms being equally applicable to the temporary and permanent organs.

It is hardly necessary, perhaps, to explain that cattle are provided with two sets of teeth during life, but it may be mentioned that the first are termed milk or sucking teeth, or, technically, the temporary or deciduous teeth, in consequence of their being shed or cast off; while the second set, by which they are replaced, are known as permanent, or “broad” teeth. Molar teeth are named first, second, or third, according to their position. In the temporary set there are three molars on each side of the upper or lower jaw. In the adult these three temporary molars are changed for permanent organs, while three additional teeth—the fourth, fifth, and sixth in position, all of which are permanent teeth from the first—are added, making the full complement of molars on each side of the upper and lower jaws.

In commercial transactions the molar teeth are rarely taken into account or examined, but where accuracy is essential, as in disputes as to the age of exhibition animals in different age classes, resort has to be had to an examination of the molars, the eruption and wear of which afford important evidence, especially in relation to the appearance presented by the incisors.

In the mouth of the calf at birth the temporary teeth—incisors and molars—are all so far advanced that they may be seen in outline under the gums, and commonly the cutting edges of the incisors and some of the points of the molars are uncovered.—From “Farm Field and Fireside,” London.

(To be Continued.)

C O R N.

IN the "Journal" for January, 1904, we wrote regarding corn as follows :—"The analysis of corn (maize) grown in Queensland shows it to be much richer in proteids (flesh forming material) than corn grown in the United States and Argentina. In all grains used for human or stock food the richness in proteids is the standard of value, and here in Jamaica where most of the local foodstuffs are largely starch we require to look seriously to the production of foodstuffs rich in proteids. It would be especially useful if we could make our corn—by crossing—selection—or cultivation, or all,—less rich in fat, and to contain more proteid, or the flesh-making element. The figures in Queensland are as follows. Richest native grown variety :—

	Queensland.	Best U.S. Variety.	Argentina.	Ordinary Jamaica.
Moisture	12.23	10.93	12.00	14.47
Proteids	13.80	9.88	13.10	12.02
Fat	5.33	4.17	5.50	3.14
Carbo-hydrates	63.80	71.95	65.80	
Ash	1.40	1.46	1.55	1.12

It is found that imported varieties of corn when grown in Queensland increase in their proteid contents. With a view to getting at the relative values of native and imported corns here we shall when the local "fall" crop matures in January, submit to the Agricultural Chemist for analysis samples of corn grown on black soil and red soil, together with a sample of average imported corn."

Since then analyses of native and American imported corn have been made and published in the Bulletin of the Department of Agriculture here. The average of a sample of American imported corn indicates the contents of 9.4 per cent. of proteids or albuminoids as against 12.5 in a fair sample of Jamaica Corn based upon a 12 per cent. moisture. These figures clearly show the fact that our Jamaica Corn is a better food than corn grown in the United States and is therefore superior as a food not only for horses, but poultry and cows. The great fault of our corn is lack of thorough curing. It takes at least *a month of breeze and sun* to cure corn sufficiently to make it fit for food. The cobs should be turned down on the stalk in the field just when they are fit to turn but hardly dried enough to snap. After a week, if dry and breezy, or two weeks if the weather has not been dry enough, they should be taken in and the unhusked cobs hung up on poles under cover but exposed to the breeze to dry still further. After two weeks drying they can be husked, and shelled, and the corn grains must

be turned out to the sun to dry for two weeks at least. If it is wet weather, the corn must be exposed under cover to the breeze, and sunned on the first opportunity. Where driers are available a slow drying of the grains for three to six days is enough to make the corn crisp and sweet. Corn must be very dry to enable it to withstand mould and weevils.

DISEASE OF ANIMALS AND PLANTS.

WE have often marvelled at the extent fatalism in agriculture prevails among people in the parts of the Island out of the busiest centres. In our late visits we found for instance one small pen-keeper who had lost a good many head of cattle in a few weeks, and their carcasses he had left to rot in the field. And this was the second time within a few years he had had such a loss. He did not know the cause of the deaths, yet it never seemed to strike him to make enquiry of us, or of any more experienced stock-keeper in his neighbourhood. He simply accepted his loss. If this only concerned himself it would not matter so much, but the rotting of the carcass no matter what disease they may have suffered from polluted the neighbourhood with germs, and there is no saying what infection or contagion may thus be spread. Some of the animals died from what was undoubtedly Anthrax. It then concerns everybody, because this disease is most contagious, so much so, that in other countries there are the strictest laws in force making it culpable to conceal its presence in a herd and making it compulsory to burn the dead carcasses. No carcass of any animal, whether horse, cow, sheep, goat, dog or cat should be left to rot, but should be burned immediately it dies, or is found dead. These laws go even further and make it compulsory for all the animals which have been in contact with those attacked to be destroyed. But then our stock are wider spread out, they can be more easily isolated, and we do not have the same risk of disease spreading very quickly. This Island is wonderfully free from epidemics, free even from widespread diseases, but it is tempting fate to take such matters- and no doubt more of such cases may, and do often, happen without coming to light,—too light-heartedly. The ignorance too that prevails on many other agricultural matters which one would think everybody engaged in any branch of agriculture must know, is astonishing, but shows that even one visit of an Instructor may be worth many pounds to a district, if he gets a hearing of the people. One man never had heard of the digging fork for cultivating, another whose calves had a chronic bad cough did not know what Linseed Oil was, which is a standard stock remedy. On the other hand, some have too much faith in advice (as with the doctor) and are disappointed if you have not a quick and certain cure for certain cultivated trees dying. In spite of science people die, with their troubles not always diagnosed correctly when living. The trouble with trees (as with people) is

sometimes in the constitution of the tree itself ; a weakly seed, or a weakly bud on an orange tree ; or a set-back through some cause when the plant is young and tender. There is a great variety of known diseases in the human race ; there are almost as many known among stock ; both die in spite of science, nursing and care. Therefore we must not expect every trouble among our cultivated plants to be diagnosed at a glance, and infallible advice be given, or some elixir provided on application. We must gain all the knowledge we can concerning our domesticated plants and animals. We must use our intelligence and judgment too and not be afraid to discuss such matters with better informed neighbours.

RUBBER NOTES.

PROBABLY the most complete outfit on a rubber estate is that at Kepitigalla Estate, Ceylon. From an interesting article in the Indian Rubber Journal we note that the results there are entirely surprising, and will probably cause a complete revival of present opinion as to the amount of rubber to be got from rubber trees. The trees there are tapped on the spiral system, which system was the result of experiments in system of tapping carried on by two rubber planters. The yields obtained by this method are surprising and have totally upset all former calculations. Where formerly 1lb. of rubber per tree was considered a fair yield, now 5lb. can be obtained. In 1903 with the V system of tapping, 248 trees gave 240lb. of rubber. Tapped in 1904 on the spiral system these 148 trees (rising 11 years old) gave 65lb. the first month and in three months gave 392lb. of rubber, and between January and September 1905, these same 248 trees gave 1,317lb. of rubber by spiral tapping. This is altogether extraordinary.

On the same estate machinery is used for dealing with the rubber. There is a coagulating machine on the centripetal system (not centrifugal) with which, instead of fleecing from the centre of the machine, the globules of rubber in the latex are induced to seek the centre, the narrow blades of the machine rushing the mass of coagulating rubber into the centre where it gradually comes out a creamy spongy mass. Up to six gallons or more can be coagulated at a time. Then the spongy mass is put through a mangle to express the surplus water. After mangling, the rubber is cut by shears or clipping knives into small shreds eight inches long, now popularly known in the East and London market as worms.

There is another machine turning out what is called lace rubber which comes out in a continuous sheet 12 inches wide and very thin and torn and broken into holes which gives it the name of lace rubber. When dry this rubber is of a fine golden amber colour with a sweet fresh odour. There is also a washing machine which can thoroughly wash, cleanse and scrape dirty rubber to turn it out perfectly clean and good.

Rubber in Mexico.—Sir,—Some time ago I had the pleasure of corresponding with you on the subject of rubber cultivation when you were good enough to quote an article of mine which appeared in a contemporary. I now beg to send you enclosed copy of a letter from Messrs. Lewis & Peat, quoting values for a sample shipment of rubber from La Esperanza plantation situated in Oaxaca, Mexico, which was sent by me to London in April last. You will see that the letter is addressed to the Mexican Rubber Company, Limited, of London, of which I am resident director, and in which I hold a large interest. This rubber is the product of *Castilloa* trees which were six and a half years old in January last, being planted in 1898. The values given for this rubber prove conclusively that the product of *Castilloa* trees can by careful preparation be brought to a very high standard of excellence. You will observe that in two cases the prices given are considerably above the price of the best Barazilian Para, which at the date of the letter, 26th May, was quoted at 5s. 7d. In one case the quotation is only 6d. below the price of Ceylon cultivated *Hevea* rubber. The trees are yet somewhat immature, and the quality of the rubber will doubtless be higher when the tress are two years older. Some hundred of trees from which the rubber was taken were only lightly tapped from prudential motives, but when full tapping was adopted as experiment, the result attained was six ounces of hard rubber per tree. The trees in no way suffer from the tapping ; indeed, I have proved by repeated experiment on younger trees that a tree once tapped yields latex much more freely than a tree tapped for the first time, and seems to acquire more rapid development. Yours, etc., (GEO. CULLEN PEARSON, Orizaba, Mexico.—From “Times of Ceylon.”

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Rubber.—We all know how tropical products rise and fall in value. A product is in demand, up goes prices, and immediately there is a rush to supply it ; the market is flooded, prices go down, and again the product goes out of cultivation or supply —to occur again after a longer or shorter interval. It will be the same, more or less, with rubber. But comparing rubber with other tropical planting subjects we have this to consider : Rubber is practically a forest product ; indeed, I shall be inclined to classify its cultivation under “tropical forestry,” and forestry subjects demand long periods of return ; they come to maturity slowly but last a long time or give a very valuable return. In Scotland larches, pines, etc., take a long time to mature (except the timber be used as pit props, etc. ; but the final return, if the timber market be watched, is very great, and pays for the years of waiting. It will be the same, I think, with rubber. If the price goes down, it goes down for *all* rubbers ; cultivated rubber will stand it best and the production of the cheaper rubbers will have to stop export ; then the supply being low prices will again rise and temporarily go on again *con spirito*. I may not have expressed myself quite clearly ; but I think it will be safe in investing to remember that rubber is a forest product and must be

considered accordingly when calculating returns. But we are assured by all manufacturers and those in the trade that the demands for rubber are increasing every year in variety and quantity, and the present supply is far below what *could* be used, if it were available. Also the total present output of cultivated rubber is so far but a fleabite of the world's production after all.

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Labour on Rubber Estates.—The labour problem on rubber plantations is a matter which we have remarked upon on several occasions, and we have stated more than once that the subject will be a serious one in the future when large acreages of rubber come into maturity. Doubtless higher wages will be able to be paid, with a product paying much better than tea at the present day; but that alone will not draw the thousands of extra hands that will be wanted, and every inducement to bring in labourers will have to be put forward. Mr. Francis J. Holloway has kindly put the results of his lengthy experience before our readers recently. He has evolved an excellent tapping system at Keppitigalla, and he shows the working of this in detail, although he makes no claim that his system cannot be improved upon. By his methods the whole work on the mature plantation, including weeding, drainage works, etc., sapping and manufacturing the raw rubber, requires only 100 coolies per 100 acres. But when the trees get larger and yield more rubber per tree, a larger force will, we believe, be required. Mr. G. H. Gollidge, of Gikiyanakande estimates a cooly's work per day to be 80 trees, giving 1lb. dry rubber; his estimate for the number of coolies required is much higher than that of Mr. Holloway, and he puts it at 3 to 3½ coolies per acre at a minimum. The subject is interesting and very important, and we shall be glad to have the opinion of other rubber planters.—“Ceylon Observer.”

INSTRUCTORS' REPORTS.

COFFEE.—Mr. J. Hirst in his report for November and December wrote as follows regarding coffee in Upper Clarendon and Upper Trelawny :—

During the month, this being the coffee crop season, I have tried to point out to the people the uselessness of keeping exhausted non-bearing trees, and advised replanting or renewing them. This is a more real trouble in the coffee industry than the state of the market. The yield is not one third what it should be, and in many cases not one fifth. How can it pay? Market prices (of coffee) have almost as much to bear as the late hurricane. The seasons have on the whole been favourable.

On the 9th December. (U.C.), from Albert Town I went to Spaldings via the Trelawny Mountains and Christiana. Coffee crops were in full swing, but the quality bids fair to be even worse than usual. In addition to burnt side and blighted coffee from some parts of Manchester and St. Ann's; we have pinched-mouth coffee in Manchester, Trelawny and St. Ann's; and almost as many irresponsible runners—some of them without clean record sheets, I have reason to believe—as there are growers, buying up anything and everything that has the semblance of coffee, (1,000 licenses in Manchester alone, I am told on the best authority). Do we produce such enormous quantities; is there such a lack of roads; or are the licensed premises so far apart, that the producers cannot be left to deliver the produce at them? Until the merchants propose the same principle of rejection which has built up the banana trade, in connection with coffee and other produce,

we shall continue to export poor quality and unreliable grade. We cannot blame the peasant producer. To cure his coffee or cocoa properly means that he must go to greater expense and submit to the consequent loss of weight. On the other hand there is a ready market for this produce in a much cruder form, and consequently realizing greater weight and more money.

Mr. Arnett wrote as regards the Clarksonville Branch :—

This Branch is also doing very useful work in connection with the curing of coffee. They are arranging for a small competition among the members of the Branch to take place at an early date small prizes are offered for the best cured coffee and also the best results obtained from a small patch of Irish potatoes. These small competitions do a great deal of good in tending to keep up the interest in the work of the Society and also tend to improve the methods of cultivation and curing of the different products. I have given a good deal of time during the month to coffee as from now on to the end of February is the best time of the year in these districts to attend to the pruning of trees. As there has been a fairly good coffee crop this year and the price has been somewhat better than in the past, the people on the whole are anxious to give some attention to the subject. A fair amount has been planted during the last month or two, and preparations are being made to plant a good deal more during the next three months, and I should have been glad to have been able to devote my time to the subject during the next three months especially, but it is arranged that I am to be at the Teachers Course in Kingston in January, and in Portland in February and March. I was in the Spring Garden district of Upper Trelawny on Monday, 23rd October, and spoke with several on the subject of giving more attention to coffee in these fine districts where there are some patches looking very well. I found that quite a little had been planted during the last few months. I also visited the coffee factory at Ulster Spring the same day. It was very refreshing to see the nice lot of parchment coffee being cured and the efficient arrangements for pulping, washing and curing this product in the district. The people in these districts should not be slow to follow the lead of the St. Ann's Product Company, in regard to coffee and the opportunities now offered for handling the produce, and with such fine land. If the attention now given to bananas was divided, and a fair amount given to coffee and cocoa, in a few years these districts ought to be very much more prosperous."

VEGETABLES & POULTRY.—Mr. Arnett acting under instructions, has besides his attention to the Prize Holdings Competition in Portland, given a good deal of his attention in urging people to take up more the raising of vegetables and poultry in Portland, and it is small industries like these that the Branch Societies can do a great deal to foster without expending as much of their funds as would be involved in the larger ideas of introducing fresh bears, and other large stock. We have also heard that despite the drought in Southern Manchester in June and July which did a great deal of harm to coffee, there has been more bought by merchants from there than for many years past. The small settlers are taking far more pains than they have taken for many years and seem to have taken heart a good deal. The mulching of the soil with dry grass or trash is especially noteworthy, and this practice is being carried to a large extent now.

The various Instructors were appointed in Manchester, Trelawny, Clarendon and St. Ann with the primary idea of arresting the rot that had set in as regards coffee when fields were being abandoned wholesale. We think this has been arrested, and that besides old fields being taken up again to some extent, substantial progress is being made in planting out anew. There is, however, as Mr. Hirst remarks, hundreds of acres, perhaps thousands, yet standing neglected, from which a few berries only are picked from the top or the outside of the trees, but which if thinned out and pruned heavily, would in a couple of years bear heavily and a much better class of berries. If this were done it would result to everybody's advantage. It would pay the man who did it a return of 100 per cent. on his labour, in large crops and better berries, and now that Central Factories buy the coffee in the berry or parchment and treat it with the best apparatus available, there could thus be a very much larger output of really fine coffee than what there is at the present time and a better price would therefore be got for it.

COMMENTS.

VACCINE.—Tubes of Vaccine for inoculating against Anthrax, Glanders, and Blackleg, can be got from M. Roberts, Shanton, Bog Walk, as per his advertisement in this "Journal." Reports from prominent penkeepers have spoken favourably of vaccination as a medium of prevention of these diseases.

* * * *

PIGS AND BACON.—Col. Pinnock, Lyndhurst, Camp P.O., has been for some time making bacon, and is now producing a quality reported by good judges to be quite equal to the imported English bacon. He will be able to extend his business if he could get plenty of the right type of pigs. The kind of pigs he wants must be fat or medium fat about 150lb. weight, but he would take them anywhere between 120 and 200lb. They must be clean and healthy barrows or shoats, well made, of the long-bodied type, and for this class he will pay 3d. per lb. delivered in Kingston. Pigs are not yet over plentiful, and we do not think they would be delivered at this price just now from a distance, but the time will probably come when there will be more hogs than the local fresh pork-market can take, and then a factory for producing bacon will be a blessing. At any rate, all pig-keepers within easy reach of Col. Pinnock's, can now find a market for their hogs at 3d. per lb. delivered. And there is now room for the more systematic breeding and rearing of pigs on large estates, where there are plenty of by-products to be used for food, such as small bunches of bananas, bread-fruit, cocoes, sweet potatoes, small corn cobs, cane tops and sugar skimmings, and so on. In next Journal there will be useful notes on the raising of pigs suitable for bacon.

* * * *

SOCIETY FOR THE PROTECTION OF ANIMALS.—The second annual report of the Society for the Protection of Animals in Jamaica for the year 1904-05 has been issued. The number of members has increased from 362 to 370. Some thousands of leaflets on the care of Donkeys, Horses, and Mules, have been distributed free to busmen, dray and mule and donkey drivers. We ourselves are indebted to the Society for the prizes offered to settlers for stock shown in the best condition at the following Shows:—Hope, Brown's Town, Savanna-la-Mar, Black River, Clark's Town, and small Shows at Springfield, Clark's Town and Frankfield.

* * * *

MUTTON.—We have sometimes noticed the strong sheepy flavour of mutton served up here. We have known the fine St. Ann mutton spoiled in this way, and commented upon by two tourists in our company, one being a medical man too. The article entitled, "Hints on Slaughtering Animals for Food" tells how this happens, and we would draw attention of hotel keepers, boarding house keepers

and butchers to this matter which is of some importance. Our sheep are of the very best breeds, mostly mixtures of Southdown and Shropshire, their feeding is rich, their carcasses are fat, and it is a pity if the mutton should be spoiled through errors in killing.

GRAPE FRUIT.—“The Colonial Exhibition has at least been productive of making Grapefruit known, as I see them in the fruiterer shops in London selling at 5 for 1s. Down here (Croydon) they are 4d. a piece. I bought a few the other day and found them quite fleshy and juicy.”—(From a Correspondent). Well we really think in that one direction at any rate, the Jamaica representation did direct an immediate good to the trade. We are satisfied on that point.

JAMAICA RUM.—Mr. Nolan, the Special Commissioner for Jamaica in the United Kingdom for the protection of Jamaica Rum, has been singularly successful in his efforts. Prosecutions both in England and Scotland, have already been conducted under the Merchandise Marks Act of 1887 against public house owners for selling as Jamaica Rum, a spirit which was not so and did not even contain any Jamaica Rum. Long accounts of these prosecutions have not only appeared in the trade papers, but in the public press generally, and this alone, beyond the successful prosecutions, is probably the best advertisement that Jamaica Rum ever has received, because so much emphasis is placed on the fact that Jamaica Rum is a choice liquor which is being imitated by a spurious article to the detriment of the consumer as much as Jamaica. When a legal standard of Ethers has been fixed for our Rums here, prosecutions may then be taken up on a wider scale, and when that happens, if we have at the same time organised effort to get the real Jamaica Rum kept on sale at the best bars throughout the United Kingdom, after the style that Scotch Whisky is pushed, a very wide sale could be established greatly to the benefit of the producers here.

POULTRY.—The interest in poultry rearing is increasing very much now that there is a certain and fairly large demand for eggs and birds for the table. As we have often insisted, it is not enough to simply advertise our scenery and climate. Such attractions may be soul satisfying, but most tourists have also appetites, and many have but very moderate powers of digestion. Therefore good food must be supplied, not only plenty of it, but plenty of variety, and of quality. It is usual to get good beef, good mutton, good pork, but it is not general to get good poultry on the average table. The breeding of good poultry is an art, the proper fattening of poultry for table is a science, the cooking—is out of our sphere, but we believe it is done as well as the material provided gives room for.

COOLIE IMMIGRATION:—Lord Elgin, the new Secretary for the Colonies in the Liberal Government, has allowed the British Guiana

Amending Immigration Ordinance to pass without advising the King to disallow it which seems to show that he is not opposed to coolie immigration.

* * *

DRAINAGE.—The article on drainage in Jamaica that has been so often asked for and which we promised to publish in February Number, we are sorry cannot appear yet. It is a very important subject and requires to be carefully dealt with, so cannot be done off-hand. It, however, will be forthcoming soon.

* * *

ORANGE GROVES.—With reference to our article regarding running horses in established orange groves where there is good sod between the trees, a correspondent writes:—"It may interest you to hear my experience of stock in a grove. I noticed in last Journal that cattle and mules must not be kept in a grove, but I find my mares and ponies equally destructive so far as grapefruit are concerned, but they do not apparently trouble the orange trees so far as I can see."

Of course, this matter of whether one may run stock in an orange grove and what stock, is one of judgment and experience. We know a good many groves where horses can be safely pastured and where the majority of trees are grapefruit. If on trial it is found that any stock pastured in a grove do harm, then act on that experience.

* * *

POTATOES—"My Potatoes are growing well, 'British Queen,' 'Early Rose,' and 'Scottish Triumph.' I will let you know how they turn out, also each sort comparatively."—Correspondent.

* * *

CORN CROP.—Our own corn crop is a very light one and will fall even further short of our requirements than usual. On the other hand, the 1905 corn crop of the United States is a record one, and the surplus for exporting is 320 million bushels, so this should keep down the local price for country corn, which at present is altogether extravagant at 4s. a bushel in the country.

* * *

PRIZE HOLDINGS.—Three months notice was given of the dates the judging was to commence in the different parishes. The particular dates when each district would be visited was advised to each competitor by letter. It is now arranged that St. Catherine will be judged by Mr. Cradwick, and Portland by Messrs. Arnett and Hirst.

But who are the practical men? Certainly those who put into practice the theories which they offer. He is eminently and pre-eminently practical who learns not only from his own experience, but from the experience of hundreds of others engaged in the same pursuits. He is narrowly practical, who does not see beyond the boundary lines of his own farm or even of his own country.

TICKS: HOW THEY ARE DEALT WITH.

Brumalia, Mandeville, 30th December, 1905.

SIR,—I am pleased to say that I have for the past three years persistently used Ferris' Universal Disinfectant diluted with water in the proportion of one to ten, this wash thoroughly applied to animals with a moderately stiff brush (such as is used for grooming horses) particularly about the shoulders, under the stomach, and on either side of the udder, has proved most beneficial to my herd, and equally useful on horses and cattle, and very satisfactory in every respect.

I use this wash on any animal that has a staring coat, or on which the small cow ticks appear, and it has never failed to completely rid the animal of every tick, if properly applied twice in ten days, and seems to have an invigorating effect on the animal. The result of the regular use of this wash is that the cattle keep in good condition, and are therefore better able to resist the tick plague, the consequence is that the ticks do not appear to me to live, and thrive as they did prior to the use of this wash and are considerably less on the pen.

Yours faithfully, A. M. LEWIS.

Pepper Pen P.O., 7th January 1906

SIR,—Your letter of the 28th ult. re tick wash, to hand. For the ordinary run of cattle I use equal parts of tar and coconut oil for the clusters of small ticks, and hand-pick off the large ones. For any special cattle, foals, etc., I use McDougall's Sheep Dip, and brood mares and horses I hand-pick all ticks off. My cattle are all penned and dressed three times a week (some every day) and horses and mares are penned every day. The only means I take of getting rid of ticks is to destroy all taken from the stock, and it seems to do some good as they are certainly much less here than they were 12 years ago when I came.

Trusting this is the information you require and that it may be of use to you.

Yours faithfully, A. P. LOCKWOOD WINGATE

P.S.—I do not use anything to prevent ticks attaching themselves to the stock, I keep them all in as good order as possible and then the ticks do not trouble them much.

Myersville P.O., 8th January, 1906.

SIR,—I have for some years past used Cotton Seed Oil and Tar. One of tar to four of oil. I have always found that this proportion does not strip the animal and is sufficiently strong to kill the ticks. I dress only when an animal requires to be done and where I see the ticks have attached themselves. I certainly think the tick pest in this quarter has diminished, and this I attribute to constant attention and good seasons which have kept the animals in good condition.

Yours faithfully, HENRY MAXWELL.

Green Valley, Cross Keys P.O., 1st January, 1906.

SIR,—I beg to state that I have found a wash of either Jeyes or McDougall's Sheep Dip mixed one part of dip to 20 parts of water and applied either with a coarse brush or piece of cloth to be better than anything else, well wash the animal with this and it will kill the ticks. I have not yet come across anything that will prevent the animal taking ticks. I understand Mr. Muller who manages Mr. John Farquharson's apiary at St. Jago has applied to the Government for a patent for a mixture that will prevent the animal taking ticks, but Mr. Muller has been kept so long by the officials out of his patent that he is rather disgusted over the matter, he has tried his mixture with the stock at St. Jago and I hear it is a thorough success. My breeding cattle are driven once a week and any with sores or near time to calve are separated and put in a small pasture where they can be seen frequently. I wash any animal that I may see

with ticks when they are driven in. I do not think the ticks have decreased in this neighbourhood. A good deal depends on the fall rains, if they are heavy we have less ticks, owing I suppose to a good many of the ticks being either drowned or washed away just before the breeding season at the end of the year. We usually find more grass lice in December and January than at any other time.

Cattle Lick.—I placed one of the blocks, No. 39 (divided in two) in the troughs out of which I feed my stable horses, they have licked this every day for more than a month, and although they are not entirely rid of ticks they seem to have less ticks than they used to. The horses are only stalled during the day and turned out to pasture at nights.

I find poultry kept at the stables or around the cattle pens very useful in picking up any ticks falling from the stock and if a cow is very tame or quiet she will allow the fowls to pick off the ticks as she stands in the pen.

Yours faithfully, ALEX. C. L. MARTIN.

Springfield, Milk River, 1st January, 1906.

SIR,—The wash I use for ticks is "Ferris' Disinfectant" in proportions of one of disinfectant to ten of water, applied with a tar brush, the disinfectant costing 16s. (including the tin) for five gallons. I am pleased to be able to report that the ticks are not nearly as plentiful as three or four years ago in this district, and I do not hear of any loss of stock caused from these pests.

I wash any stock I see with ticks once each week or oftener in the case of any animal I see suffering from them to any extent.

Yours faithfully, H. TOWNSHEND RONALDSON.

Claremont, 1st January, 1906.

SIR,—I use Professor Williams' receipt for washing cattle. Three quarts boiled paint oil and one quart tar, and find it far the best wash for ticks, it lasts quite six weeks but it must be carefully used and must be kept stirred while using. I think I may say that ticks are not nearly as bad as they used to be, but I am very particular in not allowing the ticks to drop off the cattle.

With the compliments of the season,

Yours truly, A. W. DOUET.

TICK DRESSING.

THE following preparations can be obtained in Kingston for use on cattle and other stock as a dressing for ticks and other parasites. Messrs. D. Henderson & Co. stock the following cattle dressing :—Mixed by themselves at 3s. 6d. per gallon; MacDougal's Sheep Dip hot water quality, 5 gallon drums, 30s. per drum; cold water quality in 5lb. tins, 4s. 6d per tin. Messrs. E. Lyons & Son, Kingston, stock the preparation known as Noxona at 6s. 6d. per gallon, sold in 5 gallon drums, with 2s. extra for the drum; they supply also a mixture from the recipe of Professor Williams, consisting of 3 parts of boiled oil at 4s. per gallon and one part of coal-tar at 1s. per gallon, sold in 5 gallon drums, 2s. extra for the drum; they have also a special Cattle dip at 4s. per gallon. This is to be mixed with coal-tar and this forms an excellent remedy for ticks. One of the most effective basis for stock dressings is Gas Tar. Stockholm Tar is very effective, but Gas Tar retains its effects longer and is very obnoxious to all insect life. The Gas Tar can be got through the various firms mentioned above, or when dealing in large quantities direct from the

Kingston General Commissioners, 24, Church St., Kingston, at the following rates :—5 gallon drums 6d. per gallon, and 2s. extra for the drum ; 26 gallon barrels at 6d. per gallon, and 3s. for the barrel ; 40 gallon casks at 6d. per gallon, and 4s. for the cask, delivered in Kingston, free at the Railway Station or at any wharf in Kingston. Messrs. W. H. Johnson & Co. stock the Tick Mixture recommended by Prof. Williams, which is sold at 3s. 6d. per gallon. Kreso Dip is now often used. This is one of the preparations of Messrs. Parke Davis & Co., advertised in the "Journal" and stocked by Messrs. J. M. Crosswell & Co., King St., Kingston. This firm also stocks the Zotal Disinfectant, which is a powerful germicide, and is effective against ticks, fleas and lice on animals. It comes very cheap as it is to be used in the proportion of 1 to 100 parts of water, for small stock, and 1 in 50 for large stock. It is sold in gallon drums at 4s. 6d. each, in 5 gallon drums at 18s., 2s. extra for the drum.

BRANCH NOTES.

PORUS.—An adjourned annual meeting of this Branch was held in the Church Schoolroom on Monday, 8th inst. for the purpose of electing officers and enrolling members for the year. Officers elected, H. S. Braham, Esq., President ; Revds. G. S. Grange, and W. B. Esson, Vice-Presidents ; A. S. Rose, Secretary ; C. Rowland, Assistant Secretary ; R. S. Munroe, Treasurer. Up to the present we have 20 members on the roll with a bright hope of getting many more. The Secretary read his annual report for the year ending 1905, showing that, though there was some lack of interest exhibited on the part of some of the members during the year, yet I am glad to acknowledge that we have not fallen off too much from the previous year's record. The membership on book for 1904 was 34, compared with 30 for the same period of 1905. There were nine general meetings held during 1905 with an average of ten members to each meeting compared with eight meetings during 1904 with a less average, also three special meetings, three managing committee, three show committee meetings, and at each meeting there were business transacted to some extent, the most important of which, was, 1st. an attempt at the formation of a Loan Bank in connection with our Branch; 2nd. a letter to His Excellency inviting him to meet and confer with us on the subject of a standard measurement for citrus fruit ; 3rd. to hold a Show in Porus, and finally a Fair in connection with the Society. This was proposed for the purpose of buying, selling, and exchanging live stock, and is to be held every Saturday, (in Porus), and we have bright hopes of its being successful. According to the Treasurer's books I am glad to state that we are in no less a favourable position financially.—CHAS. ROWLAND, Asst. Sec.

FAIR PROSPECT.—A meeting of the Standing Committee of this Branch was held on Friday, 15th December, 1905. Present : Messrs. R. H. Elworthy, N. W. Speid, J. W. Munroe, John Burke, John Panton, Joseph Thompson, and W. Z. Buckley. Thomas Powell a member of the Society was allowed to remain. Mr. Elworthy occupied the chair and opened the meeting by praying. The object of the meeting being the result of a motion passed at the last meeting, viz., "To consider what best to be done to promote the interest of the Society." Mr. Elworthy in a stirring address deprecated the apathy of the non-members and negligent members of the Society, and thought if we were to get the use of the New Government Schoolhouse for our meetings, so as to enable us getting up entertainments quarterly or so, it would be quite an inducement to strangers. Mr. Buckley thought the novelty would soon wear off and the thing go from bad to worse. The speaker thought the officers of the Society, with more

intelligent members, were to a great extent responsible for the stagnation. He further suggested as a remedy quarterly competitions among members, more discussing of agricultural matters, periodical lectures, and the buying of some good animals for members as well as non-members to look at and use. Mr. Munroe thought we ought to secure a good animal for the Society's use, and further approved of the quarterly competition. The usual monthly meeting came off on Saturday, 6th January, 1906, when there were present: Messrs. R. H. Elworthy, President; L. A. C. Brown, Vice-President; J. W. Munroe Treasurer; T. J. Stephenson, Josiah Munroe, John Panton, W. Ellison, and the Secretary. The meeting was opened with prayer. Minutes of last meeting were read and confirmed. Minutes of special meeting held on the 15th ult. were also read and adopted. A letter from L. A. Wates, Esq., *re* Boar were read and heatedly discussed. On motion of Mr. Stephenson, seconded by Mr. Brown it was agreed, "That Mr. Fred. Clarke, of Laughlands, be written to for a list of Poland China Boars." On motion of Mr. Elworthy, seconded by Mr. Buckley it was agreed, "That in case Mr. Clark's answer be unfavourable, Mr. Wates' offer of a young boar be dealt with." During the discussion, Messrs. J. Burke, C. Deans and N. W. Speid came in and joined. Letter from Mr. J. Barclay tabled. In view of having an early settlement of the Pig business a special meeting was arranged for Saturday, 13th January, 1906.

Mr. Burke insisted on our securing a good pig, and if possible a goat also. Mr. Panton agreed to our securing a good pig, and would like the competition. Mr. Speid agreed to a good pig and thought the quarterly competition a capital one. The following points were then decided on to be presented to the next general meeting:—1.—That the Society receive a good boar. 2.—That quarterly meetings be held free to the public. 3.—That quarterly competitions amongst members be held. The doxology was sung and the meeting terminated.—W. ZECH.

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APPLETON.—The first annual meeting of this Branch was held on Thursday, 11th January. There were present: J. M. Farquharson, Esq., President; Revd. W. S. Lea, John Barclay, Esq., (Secretary of the Jamaica Agricultural Society), Messrs. E. A. Lindo, J. G. Doran, E. S. Fadden, S. J. Swaby, J. Pennicott, C. H. Blake, William King, George Dunn, A. Williamson, Geo. Walfall, Thos. Sanderson, Merrick Green, Fred. Sampson, W. Robinson, John Groves, H. Goulbourne, R. Turner, Geo. Goulbourne, S. P. Jordon, Geo. Mais, Samuel Williams, Zepharia Jones, and Geo. Ramtallie, Secretary. The annual report and balance sheet for the year ending 31st December, 1905, was adopted. The report showed that during the year papers were read by Mr. S. J. Swaby on, "Tillage," Mr. J. G. Doran, on "Citrus Fruits," and Mr. J. M. Farquharson, on "Sugar Cane." The Society proposed having a Local Show on Easter Monday, and prizes will be awarded to members only of the value of 1s. 6d., 1s., and 6d. for the first, second and third best. The following will be a list of the exhibits, which must be bona fide property of the exhibitor, 1 quart wet sugar, 2lb. ginger, 2 sugar canes, 1 bunch bananas, 2lb. wax, 1 quart honey, 1 quart cassava starch, 1 yam, (any kind), best collection of garden vegetables, 6 sweet potatoes, 1 pumpkin, 1 water melon, 6 cobs of corn, best collection of peas and bean, best show of tobacco, 1 large bottle castor oil, 1 cassava root. This has been done to keep up the interest of the Society and to encourage better cultivation. £2 10s. has already been promised by the members of the Society towards the expense of the Show. The officers for the year 1906 are: J. M. Farquharson, Esq., President; Revd. W. S. Lea, and J. D. Doran, Vice-Presidents; and Mr. Geo. Ramtallie, Secretary and Treasurer. Mr. Barclay the Secretary of the Parent Society delivered a most useful address.

SHOW TO BE HELD.

Only the following Show is at present being arranged:—

Savanna-la-mar, Easter Monday, 1906.

CORRESPONDENCE.

Camp P.O., 7th February, 1906.

SIR,—As the annual consumption in Jamaica of pork and its products imported from abroad represents approximately 17,000 pigs of 150lb. live weight each, for which the consumer pays little short of £50,000, the magnitude of the field for the development of so important a minor industry has attracted my attention for some years, and after an exhaustive series of experiments I have succeeded in producing first class Home Cured Bacon and Ham of uniform quality which only requires to be produced from well fed pigs of improved breeds to equal in every respect the finest imported from England.

Pig breeding can be profitably developed on every banana property, pen, or homestead throughout Jamaica and at the smallest outlay.

In England and Ireland the cottager's pig is universally styled, "The Gentleman that pays the Rent." In Jamaica it should be found equally useful to the small proprietor for paying the taxes.

The number of breeding sows that a property can carry must necessarily be regulated by the food available to keep the young stock growing and mature them rapidly so that they should weigh 150lb. live weight at six to seven months old. A sow will produce two litters a year, and if you can only market an average of 10 pigs a year from her of 120lb. live weight each, they will return you if sold for 3d., £25 per annum.

Our native sows if crossed with pure bred boars of the Berkshire, Poland China, or Tamworth breeds will soon produce the quality of pigs to the standard I have named.

I commend these remarks for the consideration of those interested. I can promise a ready market to all who take up pig breeding at 3d. per lb. live weight delivered in Kingston.

Yours faithfully, A. H. PINNOCK.

SIR,—“For several years experiments have been going on to secure a practical method of extracting the rubber from the small guayule that grows so plentiful over vast areas of the northern parts of Mexico. The rubber from this plant is not equal in elastic properties to tree rubber, but is said to be quite satisfactory for vulcanising purposes, and is now bringing \$1.50 Mexican currency per lb. The various processes for its extraction include both chemical and others that are purely mechanical. The latter seem to have reached the more practical stage, both because they deliver a clearer product and because the process itself is cheaper. The shrub is cut down entire, close to the ground and ground up into saw-dust and the gum separated. The bush grows again slowly and in the course of five years is ready to cut again. No attempt has been made as yet for its cultivation, but experiments along this line will undoubtedly follow. In the meantime, however, there are hundreds of thousands of acres in Mexico where it grows wild. The plants are now bringing \$40 Mexican money per ton, cut, and the product of rubber is said to often run as high as 10 per cent of the weight. Guayule lands that could formerly have been purchased for nominal sums as semi-desert have now trebled and quadrupled in value. While there is no claim that guayule will take the place of tropical rubber from trees, it seems destined to add an important substitute in some lines of the trade. A number of prominent men in Mexico are interested in exploiting the new industry.”—Modern Mexico.

This, Sir, is the kind of rubber that would grow in a dry district without shade.

Yours truly, ROBERT ELWORTHY.

Springfield, Montego Bay P.O., 4th February, 1906.

SIR,—I am cultivating cacao and I consider my soil suitable, being in some places clay with a good amount of sand and vice versa. I have some fine trees but notice that some of them (the leaves) turn white and the trees gradually

decay. Could you tell me through the Journal or by letter what is the cause, (the Journal preferred), these trees were plot plants, seeds being sown in bamboo joints. I am planting the seeds at stake, but some of my seedlings turn white themselves and sometimes dry up and die. I have a river running through the cultivation and on that account along the banks where the seeds are planted at stake is somewhat sandy. When the river is down it floods the field and I notice, that is where the river runs over, that the large trees die out more so. It seems to me that the White Forastero variety does not thrive everywhere, especially here, as none of the Red Forastero turns white, and it grows with more luxuriance than the white I notice. I shall be glad if any of our readers who know about cocoa cultivation would give me a short account of how to go on planting and pruning, etc.

Yours faithfully, C. A. L. CAHUSAC.

(REPLY.—We shall ask Mr. Cradwick, Travelling Instructor, to visit you in April when he returns to the West-end, as advice can best be given from personal observation.

From your own local experience you should now plant only Red Forastero trees. We expect more drainage is wanted but possibly they were badly treated in transplanting. Planting at stake is usually the best method where labour is not skilled in transplanting,—but the very tender growth of the seedling cocoa requires a particularly good condition of soil. They cannot make a good start in stiff soil or very sandy soil,—the one is too hard, bakes easily, and so nips the young shoot; the other is too hot and often is gritty and harsh. In such soils, planting at stake can only be successful if each spot to receive the seed is well forked and some soft manure, added, to ensure a good seed bed. Otherwise you should continue raising seedlings in bamboo pots and transplanting them into good well prepared holes with manure added. You do not mention your method of planting or transplanting. How do you prepare the soil and what plants for you, and how do they do it?—Ed.)

Falmouth P.O., 2nd February, 1906.

SIR,—I have for some time been very much interested in your article in the "Journal" on Poultry rearing; and as I wish an infusion of new blood, I write to ask you for information and advice. At present I have a pure-bred Indian Game rooster, and Plymouth Rock and common hens. The rooster I have had for two years. The hens are rather sluggish at present, and are not laying as well this year as they did last year, though they are perfectly healthy. I wish to obtain eggs of a pure breed for setting, with the idea of rearing and keeping roosters hatched from the eggs. Which breed would you advise me to take up, and would you say where the eggs would be obtainable? To aid you, I may say that the climate here is a dry one. If you will furnish me with the advice and information asked for, I shall be extremely obliged.

Yours faithfully, C. HERMANN A. TAIT.

(REPLY.—The cross named, viz., Plymouth Rock-Indian Game, should give large heavy fowls with fair quality of flesh, but the hens will not be of much account as layers. You should not trouble to get a setting of pure-bred eggs with a view of raising up a pure-bred rooster. You would have your risk of a bad hatch and have to wait seven months before you get your rooster ready. Far better to get a Brown Leghorn or Black Minorca cock,—the latter to be preferred as the breed would thrive in your district,—a young and sprightly bird six months to a year old, and mate him with your six best hens. Addresses to write for either of these breeds and prices are sent you.—Ed.)

FOR SALE—3 Langshan and 3 Minorca Roosters at 10s. each.—Apply Isaac S. Brandon, Harbour St., Kingston.

Jamaica Agricultural Society

PRIZES OFFERED

—FOR Best Kept Small Holdings.

The following scheme is for the encouragement of cultivation upon homesteads, and takes the house and sanitary conditions into account in the Scale of Points proposed.

RULES.

1.—Prizes will be awarded for the cultivation of Land, and the establishment of permanent or staple crops.

2.—Only persons holding not more than 20 acres of Land to be allowed to compete, and the land entered for competition must be one piece, not divided by other persons property intervening; but a road, river, or gully may run through it.

3.—The residence of the competitor to be on the ground entered for competition; and such residences and grounds to be situated near (within a stated distance) of a Main or Parochial Road.

4.—The prizes to be allotted in three classes :

First Class Holdings not over 20 acres.

Second Class Holdings not over 10 acres.

Third Class Holdings not over 5 acres.

5.—No person to compete in more than one class, but competitors may select any class for which he or she can qualify.

No prizes will be awarded unless there are at least twice as many competitors as there are prizes offered.

6.—Prizes to be given in each Parish as follows :—

	1st Prize.	2nd Prize.	3rd Prize.	4th Prize.	5th Prize.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1st Class Holdings not over 20 acres	4 0 0	3 0 0	2 0 0	1 5 0	0 15 0
2nd " " " " 10 "	3 0 0	2 0 0	1 10 0	1 0 0	0 10 0
3rd " " " " 5 "	2 0 0	1 11 0	1 4 0	0 16 0	0 9 0

The Journal

OF THE

Jamaica Agricultural Society.

Vol. 10.

MARCH 1906.

No. 3.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Wednesday, 21st February, 1906, at 11.30 a.m. Present:—Hon. W. Fawcett, (Deputy Chairman), presiding; Hons. H. Clarence Bourne, and Dr. Pringle, Messrs. D. Campbell, R. Craig, C. A. T. Fursdon, E. W. Muirhead, and the Secretary, John Barclay.

The Minutes of the January Meeting having been published in current Journal, were taken as read and confirmed.

Secretary's Reports. The Secretary submitted the following reports:—

1—SEVILLE ORANGE EXPERIMENT.—I beg to report that I have not yet been able to arrange for a commercial consignment of Seville Oranges to follow up our experiment.

I have received accounting statement from Messrs. P. MacLachlan & Co., our Agents in Glasgow, and await the same from London. After all expenses are paid there will be some return to those who supplied the fruit.

JNO. BARCLAY, Sec.

Mr. Craig asked if it was not now too late to make the shipment.

The Secretary stated that he was hopeful of getting one more shipment made on commercial lines.

Mr Muirhead said that Seville Oranges were at their best now, but the freight rates made it prohibitive for any shipments to be made. With sea freight of 5s. per barrel, and 2s. 6d. per box railway freight and other expenses here, the Jamaica shippers could not get oranges to Glasgow and London at anything like the price the Seville Oranges from Spain could be landed in these places. He had made a shipment of Seville Oranges privately, and they were sold in London at 12s 6d. per barrel which was better than the price obtained for the experimental shipment, that being 10s., and even then there was no money to be made out of the shipment.

In this connection, the Secretary read a letter from the Royal Mail Company, quoting their through freight rates to Glasgow via New York for oranges, 3s. per box, and 6s. per barrel, and asking

that the statement made at last meeting that their freight rates were higher than those of the Hamburg American Line, be contradicted, as they were the same.

Mr. Campbell stated that the rates quoted to him by the Royal Mail Company were higher than the Hamburg American Company's, which took oranges through to Glasgow at 2s. 6d. per box.

The Secretary was instructed to write the Hamburg American Line and ask their rates.

2.—*Re Prize Holdings Scheme* as follows :—

The judging has been going on in Clarendon since the first of the month, but owing to the large number of entries—50, Mr. Cradwick and Mr. Hirst have not been able to get through yet.

I noticed in a report from the Four Paths correspondent of the "Gleaner," that it was stated there was some grumbling among the competitors over the shortness of the notice when the judging would take place. As a matter of fact three months' notice is required by the Rules, and this was given in the "Journal" beginning November and repeated each month, also in the newspapers. Individual notice by letter to each competitor when to expect the Judges necessarily could not but be short, when to accommodate those who had delayed entering, entries were taken up to a week of the judging.

Mr. Cradwick should start judging in St. Catherine on Monday 26th inst.

Mr. Hirst and Mr. Arnett should begin in Portland on 1st March.

There are 53 entries in St. Catherine and 58 entries in Portland, with 20 more expected. I shall present the reports at next meeting.

JNO. BARCLAY, Sec.

Contagious Diseases Bill. 3.—The Committee submitted a revised draft of the Contagious Diseases Bill.

The Special Committee appointed to consider the proposed Bill, entitled "The Contagious Diseases Animals Law," have held two meetings, and now submit their revision of the Draft Bill for the approval of the Board.

JNO. BARCLAY, Sec.

The Secretary read each clause, and after some discussion the revised draft was, on the motion of Mr. Craig, seconded by Mr. Fursdon, approved, and the Secretary instructed to send it to the Government.

(The revised Bill will be published in next "Journal.")

Hurricane Insurance. The Secretary submitted report of the Hurricane Insurance Committee as follows :—

The Hurricane Insurance Committee have held two meetings, and beg to report that the Secretary sent out a confidential circular to various representative planters, asking for a statement of particulars of the damage done to their buildings and cultivations in the hurricane of 1903, and twelve replies have been received which have been collected.

Mr. R. S. Gamble who was added to the Committee, submitted correspondence with Messrs. Head & Co., Insurance Brokers, London, in which they proposed a rate of $1\frac{1}{2}$ per cent. on crops and cultivations, and 1 per cent. on buildings, excluding bananas, and only insuring against actual hurricanes. The Committee, however, is in correspondence with Messrs. Head with a view of getting a more accurate definition of the term "hurricane" and "blow", and as to an extension of the business to cover blows and bananas.

Mr. Maxwell Hall has been kind enough to send to the Committee the particulars given herewith which are most useful for our purposes

The Committee are of opinion that unless bananas are included and unless means can be found to cover storm damage, there will not be any large business

done in Jamaica. A further report will be submitted when all the particulars collected have been submitted Messrs. Head & Co., and their decision is received.

W. FAWCETT, Deputy Chairman.

Montego Bay, 14th February, 1905.

R. S. Gamble, Esq., Kingston.

DEAR SIR,—In reply to your memo. of the 13th inst., I think that you should send your Firm a copy of my meteorology of Jamaica, obtainable at Gardner's.

Now that there is no fear of my being misunderstood, I may say that since 1655 there have been about 13 hurricanes and about 13 minor hurricanes or storms, exclusive of local gales or short continuance and 'northers.' Of these hurricanes, 4 damaged the whole island :—1722, August 28th ; 1780, October 3rd ; 1812, October 12th ; 1903, August 12th. The other hurricanes and storms damaged only parts of the Island.

But of the hurricanes, 5 occurred in almost consecutive years :—1780 October 3rd ; 1791, August 1st ; 1784, July 30th ; 1785, August 27th ; 1786, October 20th, and this will no doubt give rise to serious consideration. These 26 hurricanes and storms occurred in the interval of 250 years.

Yours faithfully, (Signed), MAXWELL HALL.

Island Chemist,

The Secretary submitted letter from the Colonial Secretary as follows :—

167-13,551.

Colonial Secretary's Office, 8th January, 1906,

SIR,—In reply to your letter No. 2954, of the 14th December, I am directed to observe that the Society by its letter of the 3rd May, 1898, (1) guaranteed to contribute the sum of £300 for three years only towards the cost of the Island Chemist's establishment, in consideration of the services to be rendered by the establishment to the Society, etc., (2) and granted £100 towards the cost of apparatus necessary for the particular work of the Laboratory. The three years were from 1st April, 1898, to 1st April, 1901.

2.—Mr. Watts was engaged pursuant to the above ; the £100 for the Laboratory was paid in February, 1899 ; and all things were done between the Government and the Society whereby the above engagement was fulfilled, until Mr. Watts was replaced by Mr. Cousins. His appointment, made 11th October, 1900, was communicated to the Society 26th November, 1900, when the Society was given to understand that it would not be expected to continue the £300 subsidy beyond the 31st March, 1901, originally contemplated.

3.—It appears to the Government that any claim of the nature of that now put forward by the Society ought to have been advanced by them on receipt of my letter of 26th November, 1900, No. 9356-11101, and that if it had then been advanced, it could not have embraced more than a refund from the date of Mr. Cousins' arrival in Jamaica to 31st March, 1901, of salary at the rate of £300 a year.

4.—The payment to the Laboratory (unlike the payment for salary) was made without any stipulation for future consideration, and it may well be supposed that 2½ years enjoyment of the benefit thereof conceded to the Society was sufficient to extinguish all claim for compensation on that account.

5.—The Society has put forward no reason for delaying this claim for over four years—if the fact be that they were unconscious that they had lost the services of the Chemist, to which they had a right for about the last four months of the financial year 1900-1901, that fact indicates that they had no practical need of the services in those months (as shown by their failure to claim those services), and therefore that practically they suffered no loss whatever by the fact that if claimed those services might have been refused.

I use the expression "might have been refused" advisedly, because it is by no means certain that if then claimed, those services would not have been accorded by an arrangement between the Government and Mr. Cousins—for the

Governor nominated Mr. Cousins a member of the Board of Management in May, 1901, and as a member of all the Committees he was constantly consulted on the concerns of the Society and did his best to forward them.

I have the honour to be, Sir, your obedient servant,
H. CLARENCE BOURNE, Col. Sec.

And also letter from Mr. Cousins, as follows :—

Government Laboratory, Kingston, Jamaica, 21st December, 1905.

SIR.—In reply to your letter of the 19th, I have pleasure in forwarding for Mr. Craig's information, a list of references to the "Journal" for 1901, to the end of 1904, illustrating various direct and indirect ways in which I have done work for the Society during that period.

As Mr. Craig's assertion is calculated to create a false impression, and to prejudice the outcome of my efforts to be of benefit to the agriculture of the Island, I hope he will see his way to correct it.

I have the honour to be, Sir, your obedient servant,

H. H. COUSINS, Island Chemist.

P.S.—I do not desire to make public the work I have done for various members of the Board of Management, but my statement is correct—H H.C.

Mr. Dugald Campbell said some time ago he asked Mr. Cousins to analyse some soils for him, and Mr. Cousins wrote back to say he could not undertake the work then, because he had nine months work in hand and he could not do it until he had finished that work.

Mr. Craig said he had stated that Mr. Cousins had done no work for the Society,—and he had got his information from the Secretary— but as he found now that Mr. Cousins had done a little work for the Society, he would withdraw what he had said and express his regret for having said it. But his point was, that the work Mr. Cousins had done for the Agricultural Society was infinitesimal and certainly not what the Society had paid for. As a matter of fact, it was quite evident that Mr. Cousins did not desire to have any connection with the Agricultural Society. Mr. Cousins had been of no use to them at all, and they had had to contribute towards his salary. He did not think it was of any use asking the Government to re-consider the matter, but he claimed that the Society had no intimation of the change which had taken place in connection with the appointment of the Chemist. The Colonial Secretary's letter was not strictly correct when it said that the Society had received intimation of the change.

Mr. Bourne said he would like to know whether Mr. Craig alleged that the statement in his (Mr. Bourne's) letter that the appointment of the Chemist made on the 11th October, 1900, was communicated to the Agricultural Society on the 26th November, 1900, when the Society was given to understand that it would not be expected to continue the £300 subsidy beyond the 31st March, 1901, originally contemplated, was not accurate. Did Mr. Craig traverse the statement of fact that on the 26th November, 1900, the Government communicated to the Society the true position of the matter?

Mr. Craig: The Society really had no notice of the change.

Mr. Bourne continuing said, if any member of the Board traversed the statement of fact contained in his letter he joined issue with him, and would say that the Society was given to understand the true position. The facts as stated in his letter, he adhered to. He was not going to attempt to defend his friend Mr. Cousins. He

thought the extremely valuable work that Mr. Cousins had done, and was doing for agriculture and the community generally, was, if not by all the members of the Jamaica Agricultural Society, by a very large number of the members of the Society, and by the greater part of the Agricultural community of Jamaica, fully recognised. And therefore if accidentally under the new arrangements, that Society suffered some small loss for a period of three or four months—if the new arrangements had resulted in Mr. Cousins having such a pressure of work that individual members of the Society like other individuals had to suffer certain delays in getting their private concerns attended to, he still thought that those facts afforded no ground for attacking Mr. Cousins, who had given himself, heart and soul, to the work he had to do. He knew Mr. Cousins was of a combative nature. Most men who felt strongly about their work, and had an uphill battle to fight, had to learn to be combative if they did not start by being combative. He did not say Mr. Cousins started by being less combative than the average man, but at the present time if he did fight his battles keenly and energetically, it was because he had a very difficult task to perform and he was very anxious to get it done.

Mr. Craig: I have never questioned the value of the work to the public which Mr. Cousins has done. It is simply the work that he has done for the Society that I have questioned.

Dr. Pringle said that it was quite clear that the onus of paying Mr. Cousins was removed from the Society when a corresponding amount was removed from the estimates of the Society. And he supposed Mr. Cousins considered that the money being paid out of General Revenue that the Society had no special claim upon his services. He could testify to Mr. Cousins' work. He had never asked Mr. Cousins to do anything for him that he had refused to do. Indeed he had been to his place on several occasions and pointed out things on the spot, and there was no question at all about his covering a very large amount of work in course of a year. But so far as that Society was concerned, £300 a year was removed from the estimates of the Society, and Mr. Cousins was paid his salary from General Revenue. He believed the reason was that Mr. Watts, the previous chemist, had a part of his salary paid by the Society, and when he wanted an increase to his salary it was not given and he went to a better field in another Colony.

Mr. Craig said he had been informed that Mr. Cousins had got an addition to his salary in lieu of fees, and simply as a matter of information, he would like to know from the Government what the fees had amounted to last year.

The Secretary was directed to write the Colonial Secretary and ask this information.

**Resignation of
Mr. Allwood.**

The Secretary submitted letter from the Hon. J. Allwood, dated from Mohawk, Florida, 24th January, resigning his position as a member of the Board.

The Board unanimously expressed their regret at the loss of Mr. Allwood's services.

The Secretary was instructed to acknowledge the letter and express this regret.

The Secretary submitted the following letters from the Colonial Secretary's Office :—

Elder Dempster Contract. 1.—*Re* Elder Dempster Contract : —

1628-1865.

Colonial Secretary's Office, 21st February, 1906.

Secretary Agricultural Society.

SIR,—I am directed by the Governor to transmit herewith, to be laid before the Jamaica Agricultural Society at their next meeting, a copy of correspondence, showing the steps taken by His Excellency to ensure compliance by Messrs. Elder Dempster and Company, with the terms of their Contract in regard to the appointment of Instructors in fruit culture, and the drawing up of a time table.

(Sgd.)

H. CLARENCE BOURNE, Colonial Secretary.

8323-8991.

Colonial Secretary's Office, 26th September, 1905.

SIR,—I am directed to acknowledge the receipt of your letter of the 18th August, replying to my request of 21st March last, pressing for the appointment of the officers contemplated by article 10 of the mail contract.

2.—I am to state that the Government recognizes fully the services rendered to Jamaica by the Direct Line under subsidy.

You on your part have readily admitted that the terms of the Government contract must be duly carried out, and all that I am directed to request is that article 10 should be duly carried out.

Your suggestion that the Government should condone a breach of contract (such as this becomes after formal request made in my letter of March 21st, but not hitherto complied with, because of those services) is calculated to embarrass the Government.

All contracts involve possible sacrifices and losses and contemplate uncertain profits, and while regretting the fact that by a visitation of Providence the contract has not yet proved on the whole profitable to your company, the Government cannot admit the suggestion that this circumstance should deprive the Government as long as it pays the subsidy and on its side fulfils the contract, of the full benefit of its bargain with the Company.

For these reasons, I am to adhere to the terms of my letter of March 21st, while professing myself quite ready to listen to any alternative which may be proposed by you after or during performance of the terms of the contract.

(Sgd.) H. CLARENCE BOURNE, Colonial Secretary.

8504-10352.

Colonial Secretary's Office, 26th Sept., 1905.

SIR,—In reply to your letter of the 18th August, I am directed to state that if the making of a proper time table must necessarily involve a diminution of the speed service of the s.s. "Port Kingston," the Government would be unwilling to insist thereon, as they fully recognize the great advantage the colony derives from the superior service afforded by this steamer.

But I am to point out that if a time table be drawn up and made obligatory, the dates therein fixed will constitute the minimum times of transit for the steamers, which will be subject to no penalty or drawback if they travel faster.

Why then should the superior speed of the "Port Kingston" or of any similar vessels which may hereafter be added to the fleet, be an obstacle to a proper time-table?

I have, etc., T. L. ROXBURGH, Asst. Col. Secty

Liverpool, November 23rd, 1905.

MY DEAR SIR ALEX SWETTENHAM.—I have had the benefit of a talk with our agent general in Jamaica, Mr. Haggart, who has been over here, and he brought with him the Colonial Secretary's letter dated 26th September, about the question of fruit instructors. This matter has received my careful and serious consideration, and while I am convinced that the Government can formally call on

us to carry out the clause in the contract with reference to the appointment of these instructors, I feel sure that I can rely on your careful consideration in this matter when I tell you that from the start of the service until now we have made nothing but losses. As far as I can gather from those who are best able to form a fair and reasonable judgment, fruit instructors, such as are described in the contract, would be of very little use indeed to the Jamaican Agriculturists. I learn that most of the exporters are large growers, who, from years of experience, are able to take very good care of themselves; and to see that the reaping and packing of the oranges, etc., is carefully looked after; and I have been told that many of them would almost resent any instruction being attempted in such cases as theirs. Of course, I can quite understand that the peasantry may require instruction, such as the Agricultural Society is giving in the growth of produce for local consumption, and I fully realize that the minor products are capable of extension and improvement; but this of course does not fall within the lines of the contract made with our service. I have asked Mr. Haggart to see you on his return to talk over this matter further with you, and I earnestly trust that, considering the losses which have been sustained, and the great efforts we have put forward to extend the connection with Jamaica, and to advertize the island generally, not only in regard to our steamers but further with the outlay on the Hotels, that you will be willing to let the question of the instructors remain in abeyance. If however, it is necessary to formally fulfil the obligations of the contract, might I suggest that we be permitted to name men who are qualified to instruct where instruction might be desired or necessary, same as we did before.

Although these men were employees of the United Fruit Company, still I am convinced they were well qualified to give any instruction that might be wanted. I shall be glad to know that you are satisfied to accept my view of the situation for the time being, and I can assure you that the interests of Jamaica will always have my most kindly and sympathetic consideration.

I am, etc., (Sgd.) ALFRED JONES.

King's House, 16th December, 1905.

DEAR SIR ALFRED JONES.

SIR,—In reply to your note of the 23rd November with regard to instructors under the Mail Contract, I must ask you to bear in mind that in this matter my primary duty is to represent Jamaica, and that as that representative it has become my duty to press that the terms of the contract should be fulfilled by the contractors. As Colonel Beckford in 1702, addressing the Jamaica Assembly, is recorded to have said: "Give me leave to pray you will not be so unkind to me as to propose anything which I may be forced to deny."

Yours, etc., (Sgd.) J. A. SWETTENHAM,

499-55431.

Colonial Secretary's Office, 18th Jan., 1906.

SIR,—Referring to my letters of the 26th September, 1905, on the default of your company to comply with the terms of the contract with the Crown Agents dated 19th April 1900, Article 5 (in respect to a time table) and article 10 in respect of five agents (Mr. Thomson having been accepted as the first), I am directed to state that your company is treating the colony very badly in neglecting to fulfil its contract in these matters, and you yourself who appear, by Sir Alfred Jones' letter of November, 23rd last, to have been asked by him to see the Governor on your return to this colony, have failed to comply with his request. It is the desire of the Governor that this neglect should cease, and His Excellency therefore proposes to ensure that object:

(a) By granting no further permission for the "Port Kingston" to call at Bermuda;

(b) By requesting the Crown Agents to refer to arbitration under the contract, your company's defaults above mentioned and to deduct whatever sum the arbitrator may assess as compensation for the default.

The Governor trusts that you will not compel him to take such extreme measures, but will arrange by telegraph within the next ten days, to give satis-

faction to Jamaica in respect of the defaults of which complaint has so long and so often been made.

I have, etc., (Sgd.) H. CLARENCE BOURNE, Colonial Secretary.

Telegram from Bermuda to Governor of Jamaica.

I shall be obliged if you can communicate to me any decision arrived at by your Government with regard to application from Elder Dempster for "Port Kingston" to call at Bermuda permanently outward voyage.

GOVERNOR BERMUDA.

King's House, 7th February, 1905.

His Excellency the Governor of Bermuda.

SIR,—In reply to your telegram of the 2nd about the calling of the "Port Kingston" at Bermuda, I am to state that the consent of the Government will depend on two matters: 1.—The compliance with Messrs. Elder Dempster with two articles of their mail contract hitherto unfulfilled by them. 2.—Acceptance by all concerned of a stipulation for payment to Jamaica by the Company of a fine for delay of £5 for every hour, or broken part of an hour whenever the "Port Kingston" shall be delayed at Bermuda for a period exceeding four hours.

I have, etc., (Signed), J. A. SWETTENHAM, Governor.

1527-1824.

Colonial Secretary's Office, 17th February, 1906.

SIR,—Referring to your letter of the 31st ult., I am directed to observe that the limit of ten days fixed by my letter of the 18th January has now been exceeded by nineteen additional days and the contract is still unfulfilled, in the particulars already repeatedly brought to your notice.

Under these circumstances it has become the Governor's duty to take the action indicated in my letter of the 18th January to ensure fulfilment.

His Excellency regrets that your Company's inaction should compel him to take this course.

I have, etc., (Signed), H. CLARENCE BOURNE, Col. Sec.

Kingston, Jamaica, 17th February, 1906.

The Hon. the Colonial Secretary.

SIR,—With reference to the matter of Instructors referred to in Article 10 of the contract between Messrs. Elder Dempster and Co., and the Crown Agents, I have the honour to inform you that I have received a cable reply from Messrs. Elder Dempster and Co., and, would beg to place before his Excellency the Governor, the offer that an allowance of five hundred pounds (£500) per annum, be made in lieu of the appointment of the Instructors.

I am asked to say Messrs. Elder Dempster and Co., feel confident that His Excellency will not make any severer demand upon them than they can possibly help, in view of all the circumstances with which he is acquainted, as to the losses sustained by this Company, in regard to running the service, hotels, etc., and I trust to hear that His Excellency will be satisfied with the proposal made, and await your esteemed reply.

(Signed), E. A. H. HAGGART, General Agent for Jamaica.

P.S.—I am advised by Messrs. Elder Dempster and Co. that the Time Table required is being prepared.—E. A. H. H.

After discussion, Dr. Pringle proposed that they recommend to the Government that the proposal of Sir Alfred Jones be accepted. Mr. Craig seconded.

Mr. Bourne said that as the Imperial Post Office were also a party to the Contract they could claim half of the amount. They had better therefore make their recommendations subject to the proviso that the Jamaica Government retain the whole £500.

This was agreed to and the Secretary instructed to advise the Colonial Secretary accordingly.

Mr. Craig asked if Mr. Bourne could say how this £500 would be dealt with.

Mr. Bourne said he could not give any pledge, but his impression was that the Government would apply the £500 to the appointment of Agricultural Instructors and probably the Society would be consulted on the matter. He thought that was the natural way to deal with the amount.

Mr. Muirhead said there was another matter which he thought heeded the consideration of the Agricultural Society, that was the amount of space in the cold storage of the Direct Line Steamers which was allotted for the shipment of citrus fruits. Nearly the whole of the space was taken up by bananas, but the oranges were stowed with them, which was especially detrimental to the oranges, and accounted for many of the shipments arriving in bad condition. It was resolved to consider this matter at another meeting.

Canadian Exhibition. 2.—Sending copy of letter from Sir Daniel Morris *re* Canadian Exhibitions as follows:—
No. J. 271, Imperial Department of Agriculture for the West Indies,
Barbadoes, 18th January, 1906.

SIR,—1.—I have the honour to enclose an extract from the Barbados "Official Gazette" of 8th January last, containing a copy of correspondence that has passed between this Department and the Government of Barbados on the subject of the representation of the Colony at the Canadian Exhibitions to be held at Toronto and Halifax in the autumn of this year.

2.—Similar correspondence has been addressed to the other West Indian Colonies.

3.—I venture to suggest, for the consideration of His Excellency, whether it would be possible to arrange for the representation of Jamaica at these Exhibitions.

4.—It is proposed that no charge be made for space, and that the Pickford & Black Steamship Company will carry the exhibits free from Jamaica to Halifax and arrange and look after them at both Exhibitions.

5.—The suggestion that a Permanent Exhibition Committee be appointed in each Colony, if adopted, would tend to reduce the cost of getting in and packing exhibits, as well as securing the best results from them. It is proposed that commercial samples only be sent, including any fresh fruit suitable for shipment that may then be in season.

6.—I would add that this Department will be prepared to afford any assistance in its power in regard to these Canadian and other Exhibitions, as it is felt that it would be to the advantage of the West Indies generally to keep their products and resources prominently in view of those in a position to utilize them abroad, as also in affording full information as to their special merits and the quantities and prices at which they could be supplied on a commercial scale.

I have, etc., (Signed), D. MORRIS,
Commissioner of Agriculture for the West Indies.

The Secretary said that there was already an Exhibition Committee of the Society and a permanent Joint Exhibition Committee, consisting of members of this Board and the Merchants Exchange; but there was no allocation for Exhibitions and therefore no funds to carry through the representation. All they could do was to ask for exhibits from anybody wishing to be represented at these Exhibitions.

The Secretary was directed to write the Colonial Secretary and

inform him of the position, and say that if a small special grant could be made for the purpose of replacing the permanent Jamaica exhibits which had been burned at Halifax, he would be glad to get these exhibits together. Meantime he was instructed to do his best to get private exhibits, and to ask Branch Societies if they could get some collective exhibits to represent the products of their district.

Jamaica Tobacco. Sending copy of correspondence from Mr. F. V. Chalmers *re* Jamaica Tobacco. The Secretary was instructed to publish the correspondence in the Journal.

882 S S. 371.

Colonial Secretary's Office, 30th January, 1906.

SIR,—I am directed to transmit herewith, to be laid before the Jamaica Agricultural Society, for their information and for publication should the Board of Management so desire, a copy of a despatch from the Secretary of State for the Colonies, enclosing copy of correspondence in regard to Mr. F. V. Chalmers' experiment of blending Jamaica with Virginia tobacco for use in the Navy.

I have the honour to be, Sir, your obedient servant.

T. LAWRENCE ROXBURGH, Asst. Col. Sec.

371

Downing Street, 30th October, 1905.

Governor Sir J. A. Swettenham, K.C.M.G., &c.

SIR,—With reference to my despatch No. 347 of the 6th inst., and to previous correspondence. I have the honour to transmit to you, for your information, the accompanying copy of a letter from Mr. F. V. Chalmers relative to the supply from Jamaica and other British Colonies of the tobacco required for His Majesty's Naval Service, together with copies of correspondence with the Admiralty on the subject.

I have, etc., (Signed), ALFRED LYTTLETON.

13, Devonshire Square, Bishopsgate, E.C., 20th September, 1905.

C. P. Lucas, Esq., C.B., Colonial Office.

SIR,—I have the honour to report to you the result of my interview with you some time since, upon the introduction of Sir Alfred Jones. I have been twice to the West Indies, Jamaica, and have also reported upon growths from Barbados and St. Kitts to the Imperial Minister of Agriculture. At the request of the Lords of the Admiralty, I blended and manufactured 8,657 tins of tobacco by way of experiment for the Navy, and I am pleased to tell you that the production is second to none. Should this meet with the approval of the seamen, it will give a great impetus to the West Indian Tobacco Industry, and I see no reason in future, if proper care and advice are given, why the whole of the tobacco for the Navy should not be composed of tobacco grown in one or other of the Colonies, entirely eliminating foreign growths. Such being the case, Colonial tobacco would vie with American or any other growth. In other kinds of tobacco, I have advised Jamaica to experiment and the results are most gratifying, and I have reported that, in my opinion, with some small modifications, the productions should compete with Havana and Sumatra, and I am told the increase in acreage this year is to be very considerable, but this experiment will have to be watched most carefully and continuously or there will sure to be delay, if not relapse.

I am, etc., (Signed), F. V. CHALMERS.

33923-1905.

Downing Street, 26th September, 1905.

The Secretary to the Admiralty.

SIR,—With reference to your letter of the 15th of December last, (V. 8192) relative to Mr. F. V. Chalmers' suggestion for the supply from British Colonies of the Tobacco required by His Majesty's Naval Service, I am directed by Mr. Secretary Lyttelton to acquaint you for the information of the Lords Commissioners of the Admiralty, that he understands that 8,657 tins of West Indian Tobacco have been supplied by Mr. Chalmers for the Navy, by way of

experiment, and I am to state that Mr. Lyttelton would be glad to be informed of the result of this experiment.

I am, (Signed), C. P. Lucas.

Admiralty, S.W., 21st October, 1905.

The Under Secretary of States for the Colonies, Downing Street.

SIR.—I am commanded by my Lords Commissioners of the Admiralty to acknowledge the receipt of Mr. Lucas' letter of the 26th ultimo, No. 33923/1905, on the subject of the supply from British Colonies of the Tobacco required for H. M. Naval Service.

2.—In reply, I am to acquaint you, for the information of the Secretary of State for the Colonies, that with the assistance of Mr. Chalmers, the Admiralty obtained a supply (1,508 lb.) of Leaf Tobacco from Jamaica, but, as it transpired that this Tobacco by itself was not suitable for pipe smoking and that there is not at the present time any Colonial grown Tobacco suitable for blending with it, arrangements were made for it to be blended and manufactured with a quantity of Virginian grown Tobacco, the proportion being 1,508 lb. Jamaican to 5,075 lb. Virginian. This preparation is now undergoing trial in the Fleet, and My Lords will be happy to communicate the general results of the experiment in due course.

3.—As, however, more than 75 per cent. of the blend now under trial is of American origin, it is evident that this test does not go very far in the direction of substituting Colonial for Foreign grown Tobacco, and it is doubtful whether such a step is practicable at the present time. It is true that My Lords are informed that much attention is being given to the cultivation of Tobacco in Victoria and Rhodesia, and that it is hoped eventually to produce there a type possessing the same qualities as that now grown in Virginia, and therefore suitable for blending with West Indian Tobacco. But planting in these Colonies seems to be, as yet, in the experimental stage, whilst, so far as their Lordships are aware, supplies even of Jamaican Tobacco are not at present procurable in the open market in any quantity.

4.—In the event, therefore, of the present trial proving successful, it must still be a matter for careful consideration whether any reliance can be placed upon obtaining regular and sufficient supplies of Colonial grown Tobacco at a reasonable price, and it would be very helpful to their Lordships in dealing with this question if they can be given fuller information with regard to the position and prospects of the Tobacco planting industry in the Colonies generally, and also as to whether the Secretary of State is proposing to take any special action in regard to the promotion of Tobacco cultivation which will be likely to assist the Admiralty in obtaining adequate supplies for Colonial sources.

I am, etc., (Signed), GEO. H. HOFTE, Pro. Sec.

Cotton Congress.

4.—Enclosing official Report of the second International Cotton Congress held on June 5th, 1905, in Manchester and Liverpool.

The Secretary was instructed to publish extracts of this Report if suitable.

5.—*Re* Letter from His Excellency and cutting *re* Caravonica Cotton. The Secretary was instructed to publish the letter and the cutting:—

Caravonica, Cairns, Queensland, Australia, 1st November, 1905.

The Director Public Gardens, Kingston.

DEAR SIR,—By direction of the Secretary of the Crown Agents for the Colonies, Whitehall Gardens, London, W.C., I beg to forward you per parcel post by this same mail, parcel No. 210, containing as follows:—Half pound Seed Cotton Caravonica, I, (wool). Half pound Seed Cotton, Caravonica, II, (silk). Also specimen bolls of each of the above two varieties. Also bolls of my *latest improved* Caravonica I, (wool), yielding 50 per cent. of ginned lint, and over one ton of lint per acre.

I may state that the Caravonica II, (silk), is a cross between Caravonica, I, (wool), and *Peruvian Kidney*, yielding a lint more soft and silky than Caravonica, I, (wool), and a staple longer and stouter and more regular and less coarse than

that of the Peruvian Kidney. You will also notice that I have succeeded in disintegrating the Kidney shaped group of seed of the Peruvian and have scattered the seeds all about the boll, allowing the fibre to develop itself more freely.

Caravonica Cotton is planted about 8 x 8ft. apart or less than 700 trees to the acre. Each tree will yield if fully grown over 1,000 bolls every year, of which about 60 weigh one pound or about 15lb. per tree of boll, so that the possibility of yearly crop per acre may be developed to over four tons of seed cotton or somewhat nearly two tons of lint. Caravonica Lint has been priced at 1s. 5d. per lb. for Caravonica Wool, and 1s. 6d. Caravonica Silk.

I sell seed at following prices —Caravonica, I., wool, 10s. per lb. Caravonica, II., silk, 21s. per lb., plus postage or freight. For quantity of 50lb. or over *half price*. The seeds I send are from the standing crop 1905, and are from bolls yielding from 42 to 45 per cent. of lint. I hope to be able soon to evolve an almost seedless boll-producing Caravonica.

Seeds may be ordered by cable; the words Wool and Silk are sufficient. Money may be posted by Money Order or Draft on Australia or London. One pound of seed contains about 2,000 grains and suffices for nearly 2½ acres for sowing. I shall be pleased to get orders from West Indian planters.

Caravonica tree cotton may be made to crop during any season of the year to suit any country or district. Here I made it bear during our Australian dry season, viz., from July to January. The cropping goes on for six months continuously, blossoming, podding, boiling always, and at the same time. I shall be pleased to hear from time to time how the young plants progress, and if any notice is given by West Indian press please favour me with copies of papers and also of American papers. Kindly acknowledge receipt of parcel of seed.

Your obedient servant, (signed), DAVID THOMATIS.

The British Cotton Growing Association is much interested in Dr. Thomatis's cotton plantation at Cairnes, North Queensland, especially as the introduction of tree cotton into India and elsewhere is viewed with favour. In former years annual or herbaceous varieties were grown in Southern Queensland, but they required laborious and constant work. I hold the view very strongly that, unless prices are exceptionally high, it will never pay the grower to cultivate these varieties in Southern Queensland. The Caravonica originated by Dr. Thomatis has been attracting a great deal of attention from all parts of the world. Four years ago, foreseeing an imminent crisis and a short supply in cotton, and well knowing how eminently adapted the northern regions of Australia are for cotton, he set himself the task of selecting and even evolving a new variety best adapted to these lands. He collected scores of varieties of seeds from all parts of the world, with samples of bolls and lint, and then chose two, both of the "Sea Island" family, one from the boundary between Peru and Brazil, and a tributary of the Upper Amazon, and the other from Mexico. He crossed them by hybridization and obtained successfully all the points and results he required and expected—that is, a staple very long, strong and regular, and of woolly appearance, so that it could be used as a substitute for wool. Three years ago Manchester firms pronounced the samples of Caravonica as the best of all the samples gathered from the different parts of the world. The leading Liverpool brokers declared that if grown largely Caravonica cotton would open a new era in cotton culture and industry, and valued it at 10d. per lb.

During my visit to Dr. Thomatis's plantation recently I made a careful examination of it; the trees grow to the size of an orange tree in less than two years, but they begin to bear a small maiden crop when only six months old, when they are already 7ft. to 8ft. high. They should be planted from January to May, during the tropical rainy season, 7ft. x 7ft., apart. When fully grown they cover all the ground, and each tree will bear from 300 to 500 bolls—that is, from 4lb. to 7lb. of seed cotton, or about 1½lb. to 2½lb. of clean lint; about 900 trees can be grown per acre. Moreover, the bolls are fully four times as large and heavy as those of other varieties, 70 bolls weighing 1lb. Three years ago the proportion of clean lint to seed stood at 29½ per cent., the second year the proportion of lint had increased to 34 per cent., and last season a further advancement to 39½ per cent. of lint indicated very clearly that by continuous selection this progress would be maintained. During my visit to Fiji last year the Caravonica grown from seed supplied by Dr. Thomatis had produced

extraordinary results. Here the proportion of lint to seed was 37 per cent. The steady improvement in the proportion of lint to seed is a distinct feature of the Caravonica and is the chief object of cotton growers everywhere.

The Caravonica requires a culture similar to that of all fruit trees ; hence it is very simple, inexpensive culture. The trees can be pruned, even severely, and by this operation they become more vigorous. Pruning should be done early in February, so that the new branches will bear prolifically in the following August. The equatorial rains from January to May are beneficial to the splendid growth of the cotton tree, then the drought or rainless period from June to December is also beneficial.

Crystal Palace Exhibition. 6.—*Re* Crystal Palace Exhibition :—

1240-1282.

Colonial Secretary's Office, 9th February, 1906.

SIR,—With reference to your letter, No. 327, dated the 22nd March, 1905 I am directed to ask you to be so good as to submit a statement accounting for the £400 of the grant of £1,000 for the Crystal Palace Exhibition, which was paid over to you by the Treasurer for the use of the local Exhibition Committee in connection with the preparation and transmission of Exhibits.

I have the honour to be, Sir, your obedient servant,

H. CLARENCE BOURNE, Colonial Secretary.

The Secretary stated that the letter was addressed to him as Joint Secretary of the Crystal Palace Exhibition Committee.

I have replied that a complete accounting statement cannot be made until a final statement of account is received from the Secretary West India Committee. Naturally it takes a long time to wind up the affairs of such Exhibitions, as there are many articles to be disposed of : and we require to make the most of every article disposable for cash.

JNO. BARCLAY, Sec.

Coconut Trees.

7.—*Re* letter from Mr. G. P. Dewar *re* Coconut trees as follows :—

1610-1557.

Colonial Secretary's Office, 20th February, 1906.

SIR,—I am directed by the Governor to state, for the information of the Jamaica Agricultural Society, that Mr. G. P. Dewar has suggested the introduction of a law making it compulsory on owners of diseased coconut trees to cut them down and burn them as otherwise their neighbours will suffer from infection. Mr. Dewar states that he finds the disease which to his personal knowledge has for the last fourteen years prevailed to windward of Luces, has now appeared in that town and on the borders of a property of which he has charge. Some owners had allowed him to cut down and destroy diseased trees at his own expense, others had refused. Mr. Dewar states that he has already lost about thirty trees. He considers when the trees show symptoms of unhealthiness they are already beyond remedy as the leading bud is decayed and rotten.

2.—His Excellency will be glad to be favoured with the views of the Jamaica Agricultural Society on the proposal.

I have the honour to be, Sir, your obedient servant,

T. LAWRENCE ROXBURGH, Asst. Col. Sec.

This matter was referred to the Staple and Minor Products Committee for consideration and report.

Indian Cattle.

The Secretary read a letter from the Government Emigration Agent in Calcutta with regard to Indian Cattle as follows :—

No. 75-1578-05.

Jamaica Government Emigration Agency,
21, Garden Beach, Calcutta, 11th January, 1906.

W. Fawcett, Esq., Director of Public Gardens and Plantations, Kingston, Ja.

DEAR SIR,—I have duly received your letters dated respectively the 7th (No. 8740) and the 13th October, 1905, with reference to the proposed purchase of Indian cattle for the Colonial Government,

2.—I recently took the opportunity, during a tour in the Panjab, of visiting the Government Farm at Hissar. The Superintendent informs me that requisitions on his present and future stock from various Indian centres have recently been very heavy owing to the ravages of cattle disease in many parts of India, and that as he must necessarily accord preference to Indian requirements he cannot guarantee to supply first class animals elsewhere at present. He will, however, be very ready to assist us as soon as he is in a position to do so, and he states that the primary cost of a really good Hissar bull, exclusive of all transport charges, will be £13 6s. 8d. to £16 3s. 4d., and a heifer £10 to £13 6s. 8d. The transport charges per head from Hissar to Calcutta may be reckoned approximately at £7 per head, and the freight, insurance, fodder charges, etc., from Calcutta to Jamaica at about £33 6s. 8d. per head. These figures which are based on the expenditure incurred in shipping cattle to Trinidad in 1902, are necessarily approximate only. Exact figures cannot be given until the animals have actually been shipped.

3.—I may mention for your information that the superintendent strongly recommends both for breeding and draught purposes a cross between the Hissar and the Gujrat breeds of cattle in preference to animals of purely Hissar strain. I am in communication with the Director of Land Records and Agriculture on this subject and will advise you further as to cost, etc., in due course. I am also awaiting definite information from the Madras Government Officials with regard to the cost of Mysore and Nellore cattle, but it may, I think, be assumed that the charges will in any case be approximately the same as those quoted in paragraph two above.

Yours faithfully, (Signed), R. N. GIBBLES.

Government Emigration Agent for Jamaica.

Coffee Industry.

The Secretary read a letter from Mr. E. W. Muirhead, stating that he had noticed a report in the "Gleaner" of a lecture by Mr. deMercado to the teachers at the Mico, in which he made a statement derogatory to the Coffee Industry of Manchester, and that he intended to refer to this statement at next meeting. If this accurately represented the condition of the Coffee Industry, and the lecturer spoke with knowledge of the subject, then he would ask what is the good of a Local Instructor. The following is the part of Mr. deMercado's lecture which was referred to:—"I have unfortunately discovered that the small peasant proprietor is getting year by year less careful of his produce and that we are retrogressing instead of progressing. I have particularly noticed this in the parish of Manchester which year by year so far as the small proprietor is concerned, is producing poorer coffee!"

The Secretary said that on receipt of Mr. Muirhead's letter he wrote several men experienced in the Coffee Industry and he quoted from their letters as follows:—

"The coffee industry here is declining all the time. I see no improvement in cultivation or in quality of the article. May I bring to your notice the curse of the 2s. license by which considerable robbery is carried on and people's children are induced to sell the produce of their parents clandestinely."

"The 2s. produce dealers should be wiped out and the quality of all our products will materially improve, as only responsible men will be able to pay, and that on the licensed premises under their own supervision. Four days per month is not enough time for the Instructor to devote to an entire parish. It should be more than four days per week, if possible six, so that he could visit the people's holdings more and thus give better instruction. The questions you have asked open up a large field for comment, and it will indeed be a serious matter for Southern Manchester if coffee fields are abandoned."

"This year there is a decided fall in the quality of coffee in St. Ann, but not settlers' coffee alone, as I find that the same is also true with the washed coffees that we have been handling. The bean is smaller, and the colour is more brownish than "blue."

The Secretary read a recent report of Mr. Hirst, the Agricultural Instructor for Upper Clarendon and Upper Trelawny, with regard to his visits to the coffee districts in which he said that the coffee crop was in full swing, but the quality appeared to be even worse than usual. In addition to burntside and blighted coffee from some parts of Manchester and St. Ann, there was pinch-mouthed coffee in Manchester, St. Ann and Trelawny, and almost as many irresponsible runners, some without clean record sheets, he had reason to believe as there were growers buying up everything that had the semblance of coffee? There were nearly 1,000 licenses in Manchester he was told on the best authority.

Mr. Fawcett said he had travelled through Manchester, and that he considered that there was great improvement in the cultivation of small settlers' coffee there, and that they had improved in curing the coffee—some settlers having made tanks and barbecues and bought pulpers.

Mr. Muirhead said if the Agricultural Instructors' work had caused the settlers to improve their fields, the general quality of coffee should also be improved, and if it had not, there must be something wrong. This was largely due to the system of licenses which was in vogue. The Produce Protection Law was no protection, on the contrary, it was rather a curse. In the parish of Manchester there were about 750 2/- license under the Produce Protection Law and nearly £500 had been collected for licenses. He thought this matter should occupy the attention of the Society, and they should get the opinion of Instructors as to the reason why there was no general improvement among small settlers' coffee in this product.

Dr. Pringle said the matter had been discussed by the Legislative Council on previous occasions, but any attempt to alter the license was taken as an attempt by the big man to keep down the small man. As Mr. Muirhead said, the Produce Protection Law as it stood at present was a curse, and he thought Mr. Muirhead should communicate with the member of his parish and ask him to bring up the matter at the next session of the Legislative Council.

It was decided that the Board should further consider the matter. Meantime the Secretary was instructed to write the Agricultural Instructors and others to obtain their opinions on the subject.

As it was then 1.30, it was then decided to hold over the other matters on the Agenda till next meeting.

New Members

The following new members were elected:—

Messrs. Ralph M. Cocking, Widcombe, Kingston; H. Maitland Bryson, Cape Clear, Olonmel; Jno. Lockett, Sagua de Tanamo, Ouba; J. and R. Tennent, Limited, Wellpark, Brewery, Glasgow; Archd. Munroe, Fort Royal St., Kingston; A. B. Coate, Medias Aguas, Ver., Mexico.

The meeting adjourned till Wednesday, 21st March, at 11.30 a.m.

THE older the country grows, the longer it is farmed, the greater the number and variety of weeds. They come to us on the highways of travel from the east, from the west, from the south. They are borne in upon us by winds, carried by birds and animals in their migrations. They are with us to stay as long as grass grows and rain falls.

SEASONABLE HINTS.

OUR agricultural year is divided into two planting periods. In northern countries cultivators have as a rule only one crop a year ; they plant in the spring and reap in the autumn or fall. Our growing season is not confined to six months, but a year. Between March 15th and April 15th is the greatest planting season of the year in Jamaica. There is no seed or plant that may not then be planted with success. The other great planting period is between August 15th and September 15th. There are, however, some districts which are exceptional, especially in the second half of the year, and in these places the planting seasons differ a little. Some of our plants take less than six months to grow, and these may be planted twice a year. The most important product to us coming under this head is corn. We import about 200,000 bushels, costing us over £25,000. We admit that it is not easy to grow corn with direct profit here, where we have so little ploughable land, and where what is ploughable is often occupied with more permanent crops, while in the United States cultivation is carried on on a large scale on flat prairie lands, with labour saving implements in use ; often indeed steam being used as a motive power instead of mules and horses. But like some other products we could name, the indirect results have also to be looked at. However these have sometimes to be looked *for*, not being always very apparent. The first of these is that Jamaica Corn is not so heating, and makes more muscle than American Corn. The next point is, that besides the grain, we have all the thinnings of the weak stalks to feed to our beasts, and when the cobs are formed we have the corn tops for feeding stock also. For both these two sources of green feeding the value may be set down at 15s. to 20s. per acre. The figures in greater nutrient value may be set down at 10s. to 20s. per acre, counting only 20 bushels to the acre.

The other important crop is peas and beans. We import over 16,000 bushels costing us between £6,000 and £7,000. All the different varieties, and we have many, can be planted now. Red Beans only take two months to bear, and these can be planted four times a year, but never with such safety as now. They can be planted along with the corn in the same row, while Black Eye Peas or Quick Increase Peas can be put between the rows. Guinea Corn can be planted in dry districts, but seed is never very plentiful. It is much subject to being made the feeding ground of a host of birds, and it used to be planted simply to attract pigeons and other birds so as to provide shooting. Its appreciation by birds is sufficient indication how it may be appreciated by poultry. In planting ordinary corn, great care should be taken to secure good seed, and not simply go to the corn bin and take a few quarts at random for planting. Anybody who has not selected the best cobs in his own crop carefully, may write to us for seed corn and we

shall get it for him. It is best to buy seed corn in the cob so that one may see for himself what the cobs are like.

Cotton should also be planted as near the 15th of March as possible. This year the seasons have been such that it could have been planted in February, as the aim is to get the crop in in July, which is a dry month. It may also be planted in August and September.

Irish Potatoes may now be planted in all upland places with a good rainfall. We have imported 20 barrels of seed potatoes to order, but after all this is a trifling quantity, the output from which will only be about 200 barrels, while our yearly imports are between £3,000 to £4,000.

A very useful and ornamental plant which should be grown more is the Sunflower. It serves a quadruple purpose. It bears a magnificent ornamental blossom, which bees go to for nectar and pollen; the seeds are excellent feeding for caged birds, and are good for fattening fowls for table; and the fourth purpose is that it serves as a trap (as was discovered by the late Dr. Neish) for Fiddler Beetles. Sunflowers seem to have a special attraction for these beetles and they can be picked from them easily in clusters and killed. Wherever there are orange trees, therefore, sunflowers can be set through them or near them to attract the Fiddler Beetles.

If bananas meant to come in next year have not already been planted, it is now as late as this may be done, and big suckers should be planted in good big holes so that they may make a quick start. Orange trees may be set out in April. Cocoa and coffee may also be then planted with safety. Growing cocoanuts may be planted out in the field now and good big selected nuts may also be set out in the nursery to sprout.

There is a big demand for yams just now for export to Colon. As there will be a much larger number of West Indian labourers engaged for the next five to ten years than there is at present, there will be a much larger demand next year and continuing on. Therefore, people favourably situated, should plant as largely of White Yam as possible. Yellow Yams and Negro Yams do not keep well, and though they may be prepared so that they may last a month, they are not favoured by exporters of yams. The parish of Hanover with its "Lucea" yams should profit largely by this Panama trade.

RABBITS : OVER-STOCKING.

I was much interested in the article in the January number of the "Journal," on the over-stocking of lands. You might add that the remarks apply in a special way to rabbitries. There is no animal that feels over-crowding sooner than a rabbit, strange as this may appear, when one thinks of rabbit warrens. It is better to have smaller hutches and fewer rabbits in them, rather than to have big places and put large numbers together. (One

reason why rabbits do not thrive when many are in the same hutch, is because they are always stirring each other up—even if they do not fight they do not allow one another to sleep enough to thrive). I find that the only way to prevent disease is to remove the earth regularly from beneath the hutches as soon as it is fouled, and spread fresh soil from an open pasture—the manured earth being put in the field. White lime may occasionally be sprinkled in the rabbitry. No matter how carefully the hutches are kept, they require to be left empty for a time occasionally. My plan is to tar them out in rotation, with tar well thinned with kerosene oil, laid on hot after the wood work has been well washed and dried. This disinfects, freshens and preserves the hutches, and the rabbits thrive when put back. In the same way the runs and pens should be thrown up for a while, and the soil changed. It is to this constant care that I attribute the fact that I have never had any skin troubles, eye or ear affections, among my own stock, and apart from accident or some error in feeding, I never lose an animal.

C. N.

C A T T L E.

PART II.

Ascertaining the Age of Cattle by the Teeth.—Subsequently to birth the advance of the teeth proceeds very rapidly, and at the age of one month all the temporary teeth are fully developed. “No accurate opinion,” says Prof. Brown, “can be formed of the age of a calf from observation of the state of dentition between the age of one and six months, when the fourth molar is cut, but during this period the jaws expand, the incisor teeth gradually become crowded, and the space between the third molar and the angle of the jaw increases as the fourth molar, which is the first permanent tooth, advances to occupy its place. At the age of six months the fourth molar is well developed, but in close contact with the angle of the jaw, and the posterior surface not quite free from the covering of the gum.”

There are no important dental changes between six and twelve months, but the incisor teeth become worn by use, while as the jaw increases in size there is more space between them.

The yearling has a full month of temporary incisors, but it is not possible to assert from their appearance whether an animal is under or over a year old.

Shortly after one year the fifth molar begins to make its appearance, and at fifteen months it is well up. No change occurs in the incisors, excepting that which is caused by the wear of the teeth and the growth of the jaw, until at about the age of one year and eight or nine months the two central temporary incisors become loose, and the first broad teeth sometimes begin

to project through the gums. No difficulty is likely to be experienced in differentiating between the deciduous and permanent incisors. Temporary incisor teeth are easily distinguishable from permanents, owing to their smaller size, while their fangs are very much shorter, although this fact is not very apparent until the teeth are removed from the jaw. The popular term "broad" teeth, applied to the permanent incisors, sufficiently indicates their prominent feature. In very forward animals the central permanent incisors may be cut at the age of nineteen months, but they are never anything like level with the other incisors before one year and ten months, and their perfect development indicates two years of age.

About the same period the sixth and last permanent molars are in position, and Prof. Brown says that any error of opinion which might arise from the premature cutting of the central permanent incisors may be corrected by reference to the state of the molars. From two years and three months to two years and six months the second pair of broad teeth, the middle permanent incisors, are usually cut, and occupy the place of the corresponding temporary teeth, but there is occasionally a variation of several months in the appearance of these teeth, which, in cases of backward animals, may not be cut until approaching three years old.

Looking at a mouth containing two pairs of broad teeth, the conclusion will be a fair one that the animal is two years and a half old, but if it is essential to determine whether the animal is under or above this age, the molar teeth have to be examined, and the animal's sex, pedigree, and general condition of development taken into consideration.

A bull of one of the cultivated breeds that has been forced from birth may be expected to cut its second pair of permanent incisors at two years and four months, and Prof. Brown says that in such an animal the conclusion that it is under two years and a half will be strengthened if either of the anterior temporary molars remain in their places.—From "Farm, Field and Fireside."

RUBBER NOTES.

Profits on a Small Rubber Estate.—The "Ceylon Observer" publishes the following extract from a letter dated somewhere in *Malaya*—no need to specify—7th February, 1905: 'Unfortunately,' writes the correspondent, 'I have only five acres of rubber yielding at present. I get about \$100 per acre a month profit from them.' One is inclined to think 'if these things be done in the green tree?' But present prices remind one that there are places where angels fear to tread.

* * * *

Is this the limit of Production.—Originally all the rubber of the character now described by the term "Para" was derived from Brazil—at first from the lower reaches of the river Amazon, tribu-

tary to the trade of the port of Para, and extending gradually up to and beyond Manaus, and including all the territory in Brazil drained not only by the Amazon proper, but by its thousands of miles of tributaries. So long as Brazil contributed an annual increase of rubber supplies, little heed was given to any suggestion that a limit of production might ultimately be reached. To get down at once to the official figures, the exports of Para rubber of Brazilian production (including Caucho) during the last four calendar years have been as follows: —

	1901.	1902.	1903.	1904.
Tons	29,373	27,474	29,319	28,972

It is reasonable to suppose, had the natural supply been unlimited, and the means for marketing rubber likewise capable of constant expansion, that the high price level of 1904 would not have tended to a production as great, at least, as in any former year! — “The Indian Rubber World.”

Artificial rubber is no nearer in sight than ten years ago, and seems as remote as artificial gold; but if it should be achieved, chemical rubber would probably be of a low-grade or would cost more than plantation rubber. However, the fall from present prices is not likely to come very soon. One of the largest American importers of rubber has a man in Ceylon now trying to write contracts with rubber plantations there to take their entire output for the next ten years at one dollar per lb., but it is not believed that he is doing much business. The present outlook is that the planters can do better than that. — “Ceylon Tropical Agriculturist.”

The London correspondent of “The Times of Ceylon” writes: — “Talking to the director of a Straits rubber company this week, he mentioned that on their property 100 coolies a day were hard at work tapping and bringing in 12 ounces a day. The yield per tree (the trees being from six to seven years old) was some six ounces from the one tapping, and the manager estimated that the yield per tree for the year would be $1\frac{1}{8}$ pounds of rubber per tree operated upon. The first consignment sold last week at 6s. 7d. (\$1.50 $\frac{1}{2}$).”

NOTES ON THE CARE OF PIGS.

Imported Breeds.—The Poland China, Berkshire, and Tamworth are all profitable types of pigs, and if crossed with our native sows, will produce pigs that will mature early and scale 150lb. and upwards at six months old.

Breeding Sows.—A breeding sow should drop two litters a year, the gestation period is four months, and her young pigs should be weaned at six to eight weeks old. She should not be closely confined. Shortly before dropping she may be penned, her young being allowed to run in and out as they like. While suckling her young she must be liberally fed three times a day and not be allowed to run down in condition.

Young Pigs.—Growing pigs should be kept healthy and fat. At the time of weaning they must receive suitable feed, such as middlings or skim milk to keep them from falling off in condition.

Fat Pigs.—Pigs should be fattened and fit for the butcher at six months old. The improved breeds should weigh at least 150lb. at six months, and one pound per day should be the minimum gain up to one year old.

Feeds and Feeding.—Experiments in other countries have established the fact that 4lb. of corn ground and soaked in water, will produce 1lb. of pork ; but 4lb. of corn fed with skim milk in proportion of 3 quarts to 1lb. of corn, it will produce 2½lb. of pork.

Imported Meals.—The high price of imported meal and corn will not allow of its being profitably fed to pigs except to a small extent, and then only in conjunction with other feeds. Breeding sows while suckling their young should receive 1 to 2lb. daily in addition to other feeding if it is found they are falling off in condition.

Salt and Charcoal.—Salt should always be sprinkled over pigs' food, and if they are kept in close confinement a handful of charcoal should occasionally be thrown in the food. A pig should be fed at least twice a day all it can eat up clean.

Green Food.—A pig in confinement must be given some Guinea grass or other green food daily.

Water.—All pigs require pure water to drink and should have access to it at all times. It is not necessary as many people suppose that the pig in confinement should have a mud pool to wallow in.

Bananas.—Bananas which are one of the staple feeds in Jamaica can be fed in various ways. Ripe bananas produce the best results, green bananas should be boiled with salt and fed cold. Admirable results have been obtained with green bananas treated as follows : Strip off the fingers and throw into barrels, cover over to exclude the air and leave to ferment, when the fruit is reduced to a pulp bale out the solid mass and feed to the pigs, the vinegar can be stored and ripened for domestic use.

Styes and Pens.—The man who keeps pigs in a filthy sty should be prosecuted, unsanitary quarters breed disease. A large run is not necessary for fattening pigs, but if confined in a small space they must be kept dry and clean. A concrete floor is perhaps best, but boards raised a little off the ground do equally well, and when the ground underneath gets foul they can be removed to a fresh place. Above all, proper provision must be made for a sleeping place affording ample protection from rain. For fattening pigs in larger quantities, select an old building (if you have one) and make the roof water-tight, so that the pigs are sure of a dry bed in all weathers, adjoining it fence in two runs sufficiently large to give the pigs plenty of room to root, when the ground in one begins to get foul change to the other.

Lime.—Always disinfect with lime all foul pens after clearing away the manure.

PIGS AND BACON.

THERE has always been imported in Jamaica large quantities of pig products. Between 1901 and 1905, there was imported between 33,000 and 50,018lb. of bacon each year, costing from £1,132 to £1,714, and there was also imported between 5,131 and 9,460 barrels of salted pork costing £17,402 to £29,326, together with 96,186 to 168,421lb. of lard costing from £1,638 to £2,456, besides from 152,949 to 187,097lb. of other kinds of hams (and one year before 1900 as much as 220,000lb. at a cost of £8,000). In all between 1st April and 31st March, 1903, £27,101 was paid for pig products for eating, leaving out pigskin leather and other trifles. All this money has been going from a country eminently suited for rearing pigs, and paid to countries much less well adapted naturally for a pig raising industry.

At the inception of the Agricultural Society, enquiry was made into all those imported products which it was thought could be profitably produced in the island. One of these was bacon. In those days it was confidently hoped through the impetus the Society was giving in calling attention to such opening for local enterprise, and by the dissemination of specific information on the rearing of pigs and making of bacon, the island would soon have local effort and enterprise engaged in utilising surplus pigs in producing our own bacon and other hams, and lard ; and also in putting up pickled pork. But to do this it was necessary to have the proper type, the real bacon hog. The common type we had at the time was the China Pig such as we have often described, a little round, smooth-skinned black pig, easily reared, never growing to a large size and maturing early, but of the type commonly called the lard pig. This was suitable for the ordinary market of the island, the demand for fresh pork ; but not for hams. The bacon hog on the other hand is a long-bodied pig, which if given the right kind of food, will make more lean flesh than fat and provide flesh of good substance. Its quarters will make good hams and its sides good bacon. The typical breeds of bacon hogs are : 1.—Yorkshires, which are white ; 2.—Tamworths, which are red ; 3.—Berkshires, and 4.—Poland China, both of which are black pigs. The Board of Management therefore made a large importation of Berkshire and Poland China Boars and Shoats, both black breeds, this colour being presumed from experience to stand sun better than white or red. As there had been no fresh blood introduced among the China hogs because the breed was practically extinct elsewhere, it was thought necessary to get a type to improve this, and so the Essex Pig—a breed first introduced in the country of that name in England, now extinct there, but largely bred in the Southern United States as a pork pig, was also imported. It is one of the undeniable and accepted facts that this importation of pigs did immense good

to the stock in the island. These long-bodied pigs have almost completely superseded the China pig. That particular period in the island's history was one of the most depressing, with a depression almost amounting to panic, and the people were so down-spirited, that it was really hard to arouse enthusiasm or energy at all: then the imported boars were gone before the agricultural propaganda, now beginning to be appreciated, had got any hold of the people, and so these imported pigs were not in the demand anticipated. They however left some hundreds of direct progeny, but it ought to have been thousands. Perhaps the pigs were a little bit too previous. The way might have been prepared first by longer propaganda. There is, however, a cry now for the use of good pigs, because the teachings of the Society have now been assimilated, have taken effect, interest has been aroused even to the length of some enthusiasm. However, if the boars themselves were then not appreciated as they would be now, their effects were so visible in the progeny, that it stimulated private effort, and quite a quantity of good standard boars have been imported lately, Berkshires, Poland Chinas and several Tamworths.

Col. Pinnock of Lyndhurst, St. Andrew, has been successful in making bacon which is appreciated, and it has secured enough custom to warrant him going into the business on a larger scale if he could get the pigs. The trade to compete with bacon made on a larger scale in the north, will not warrant the offer of more than 3d. per lb. live weight for pigs delivered in Kingston. But as he will take a certain quantity, and he will take them in such a way that they do not require to be made fat as for the local fat pork trade, the production of bacon hogs from the types we have now most common in the island, can be made profitable by large estates, especially banana plantations, where there is much good pig-feed available as waste products. It should be remembered that it is what are called in the island "long-bodied" pigs that are wanted for the trade, not the little round pasture pigs which are of no use for the purpose of making bacon. The ordinary foods available do not make good bacon hogs as a rule, because our foods are all too starchy, fat-making rather than flesh-making, such as bananas, cocones, sweet potatoes, sugar-cane, even corn, although the Jamaica Corn has much more flesh-forming material than the imported American, and is therefore useful. But corn is, as a rule, too expensive in the island to be fed much to hogs, unless just when the crop is being taken in when there are plenty of badly formed cobs usually available, but we have, however, so much green stuff and such a variety at hand, as an offset to the starchy matter that ordinary pigs, getting as much as they can clean up of our common foodstuffs—in two feeds twice a day, with green food *ad lib.*, on a free run, or at any rate a good run, so that they can rout up plenty of grubs and worms, will be fit for Col. Pinnock's trade at the age of from nine months to a year. There will be very few places here where milk will be available, for where there is separated milk there will be

calves to feed, but where corn and milk can be fed, the young hogs should reach 150lb. weight in six months as stated in the article above. Coconuts are very fattening, but it is wasteful to feed the whole nuts to hogs, as the oil is practically wasted on them, so the oil can be expressed first, by the ordinary household method, and sold in the local market, or used in the household for the dozen and one purposes for which it is useful. The resulting pulp is a typically good food for making flesh. Peas are also flesh-forming whether it be the grain or the plants, but even the cheapest kind of peas, like Cow Peas, are also too high priced to be fed to hogs here, except in places where Cow Peas are being grown as a green dressing, and hogs can be turned in to feed them down first. Our cultivated places, however, do not often allow of this. At any rate, there is at present more demand for pigs than there is supply, and we commend the business of more systematic pig-rearing to planters.

BUTTER FACTORY.

THE Butter Factory or Central Creamery established at Barossa near Mandeville, by Mr. Lionel Kerr, is now in full operation. It supplies what has long been wanted. In two ways the manufacture of fresh butter on a large scale is useful. 1.—The output is of economic value to the island, because it means so much less value imported. 2.—It means not only so much less money sent out of the Island for butter, but all the money for the milk and for the additional labour in looking after the stock, in delivering and manufacturing, is circulated in the island; and also that fresh butter is used, which is more palatable and healthful than tinned butter. But it ought to go further than the supply of an outlet for milk from the herds of cattle in Manchester. It gives the opportunity now for Manchester penkeepers, who have had little choice hitherto in agriculture, to go in for some mixed farming. Part of this addition to their income through the receipts from the sales of milk and cream, can be used to further increase these sales. To do this green crops and root crops must be raised, and corn, sugar-cane, and a better quality of guinea and para grass, together with sweet cassava and sweet potatoes, are what would be the most suitable for the district. The best way to proceed would be to take a pasture, break up as much of the sod as can be well-covered by the manure saved, (and saved under cover to prevent rain washing the virtue out of it) and then plant great corn, guinea corn, and sugar cane. Sugar-cane will not grow well on the red soil without an application of manure, but it is an excellent stock food, and it can be used young without waiting until it is ripe. Part of the corn can be planted thickly to be thinned out for green fodder and part kept for the grain. Through the corn and cane, French or Kidney beans which mature in 7 weeks, can be planted at little cost, and large crops of these would save much if not all of the 16,430 bushels of peas and beans imported last year, which cost

us £6,572 6s. 8d. Manchester could secure that amount if it liked. Manure must be used to make the returns from the crops more profitable, because it is unreasonable to expect grass any more than any other crop to continue giving satisfactory return years after, and generation after generation, without getting something added in return. Therefore, sugar-cane and corn, both being grasses, the mere turning in of the sod would not result in as good returns without the manure as it might do with root crops. But sod is a splendid manure for root crops. A part of the pasture then could be put in sweet cassava and sweet potatoes, without manure, for the first two crops. The vines and roots of sweet potatoes, and the roots and leaves of sweet cassava, are reported from experience in Florida, to be excellent for milch cows. After two or three years cropping, all this pasture could be allowed to grow up in guinea grass, and another pasture be taken up. Or a piece of the pasture that was under the sugar cane, which crop has the virtue of leaving the ground covered deeply with a mulch of rich vegetable material, could be planted in coffee and plantains, and perhaps young orange trees also, and as the more the cows were fed, the more milk they would give, and the more manure would accrue, a considerable field of coffee could be worked up, and be made to yield large returns very handily with the aid of the manure. From the calf pens also there would be a considerable quantity of manure. The calves could be pushed on by these home-raised foods, chopped canes, finely ground corn, chopped sweet potatoes and cassava, after they were two months old, in addition to the separated milk and calf meals, used to supplement the milk for the first two months, and they would grow quicker and become better milkers through increased vitality, even without the aid of a dairy bull as a sire. The milking propensities of bulls and heifers, especially those of Shorthorn, Devon and Brahmin blood, will improve quickly by the constant milking of the cows to their fullest. The use of the separated milk would necessitate the use of some oil substitute to take the place of the butter fat in the cream. In other countries, it is usual to use Linseed cake meal or ground flax seed. Cotton seed meal or oil is not a good substance to use for calves.

Possibly, some product rich in oil, could be raised to take the place of imported Linseed meal. This would be a matter of test, but it might be pea-nuts, for instance, or even sun-flowers, the former much the better for the land and the stock, and the meal after the oil was extracted would be a most valuable nitrogenous food for the young stock. Such milk and fat substitutes might require only to be added for two months, then the home raised cornmeal would be sufficient. Our own coconut oil and meal form a very efficient substitute for linseed oil and meal if they can be had cheaper. But in a hot country fat is not so necessary for the calves or for so long, and it is possible that what is contained in the calf meal fed with the separated milk may be found sufficient. This, a little experience and observation will tell.

At present, the factory is turning out up to 2,000lb. of butter per month. Penkeepers have their own separators and only send in the cream, which therefore saves carriage,—but some milk is bought from places near at hand and from small settlers, who wait while the cream is separated, and they get their separated milk back in four minutes. They are paid 2½d. per quart for milk, and the cream is bought at 1s. 8d. per lb. for butter fat content, which works out on an average at 2½d. per quart for milk. Thus those cows giving only a few quarts per day, say three or four, will almost return their value in a year.

Calves.—Great care will have to be taken with the calves, or it will happen that through greed, too much milk will be drawn and the calves starved and stunted. It may be figured out and proved from each man's experience, whether a quart or more may be drawn from the cow additional and a proportion of calf-meal fed to the calf to make up for the milk, and leave a margin of profit, without ill-effect on the calves. It is to be remembered that the pasture-fed cows cannot at once be treated in the same way as cows whose progenitors have been handled in dairies through successive generations.

There is nothing like fresh milk to start the calves, and they should get the whole or most of their mothers' milk in the case of ordinary cows, where 3 or 4 quarts would be drawn in the morning to give them a good start for the first two weeks to a month.

The young bulls receiving good hand feeding may probably make better beef than now ; if they do not, however, receive extra feeding for 3 or 4 months to make up for the milk, they will grow up a crowd of stunted and miserable looking steers. We take it that the heifers, at any rate, will be carefully fed with meal foods in addition to the separated milk to provide future good milkers. They will not do this unless they are full of vitality.

Altogether, this is a worthy enterprise, and reflects the greatest credit on the proprietor, who has not only shown great mechanical ability in fitting up the rather delicate and elaborate machinery necessary for the working of the separator, churn and refrigerating apparatus, but also good administrative capacity in working up a business entirely new to him and to the Island, on a large scale. Not only Manchester is benefitting from this enterprise as cream may come from a distance ; some indeed comes from St. Mary and some from St. James by rail, while St. Ann also could be served by railing cream in quantity from Ewarton.

ABORTION IN COWS.

THE other day we saw a cow that had aborted, standing in the stalls of a dairy, with about a score of other cows,—and this cow was passing matter which lay in the gutter behind.

In the past, abortion was attributed to various causes, to ac-

cidental injuries mostly, to drinking impure water, to eating something that had caused diarrhoea, to sympathy from seeing other cows abort, and although all these are factors, especially injury through a blow or fall, and whole herds might abort from sympathy, it is now known that it is extremely contagious, and may be perpetuated by a germ without any outside cause. In this case mentioned, there was the serious danger to the rest of the cows, that the germs which were in the stable would find entrance into them.

When a cow aborts, which they seldom do before the fourth month, the calf if not born alive, should be burned or buried deep in lime. If born alive, which it may be after the sixth month, it is not worth keeping, and should be washed in disinfectant, and then butchered as veal. The after-birth should also be burned, and if it has not come away it should be removed by hand.

To carry out this operation—after washing the hands and arms well in an antiseptic solution and smearing them with any sweet oil or vaseline, one hand should be passed into the womb, and the after-birth should be carefully freed from its adhesion to the womb, stripping it from each projection without violence, while gentle traction is kept up with the other hand on that portion of the after-birth which is protruding. The operation is not difficult to carry out if time and care are given to its performance. After removal of the after-birth, the womb should then be carefully washed out with the antiseptic solution (the most effective of all is one part of corrosive sublimate to 4,000 parts of water), and for the next three or four days, the vagina should be syringed out in the same manner, with a somewhat stronger solution (one part corrosive sublimate to 2,500 parts of milk-warm water). Afterwards the washing out of the vagina should be repeated once a week till all discharges cease.

If no corrosive sublimate is available, or there is fear to use it, a strong antiseptic may be used, any of those advertised in the "Journal" for instance. Every cow that aborts should be flushed out with a strong antiseptic solution even when the after-birth passes. The stall the animal was in should also be thoroughly scrubbed with the disinfectant. If the cow aborted in the pasture, the after-birth should be burned and the spot burned over with grass and sticks. The cow should not then run with any other stock for awhile, and should have her vaginal parts bathed daily with an antiseptic solution as mentioned.

STOCK NOTES.

HIDES OF DEAD ANIMALS.—It may seem a small matter the saving of the hide of a cow, or horse or sheep that dies by accident. Yet it is by such small economies that fortunes are accumulated. Take care of the pennies and the pounds will take care of themselves. Each year there are many cows, horses, and sheep that die by accident, whose hides will bring good prices if taken off properly and promptly salted and sent to market. It is more important

to salt hides taken from dead animals than those that are slaughtered, for the sticking draws out most of the blood from the hides as well as the meat of such. Not so with the animal that dies without being bled; hence the necessity of prompt and well salting. To do this, it requires a bucket of salt to a good-sized hide; smaller ones in proportion. Such hides if well taken off and not cut with holes will bring full value. The wool from dead sheep, when the hide is spoiled, is worth saving also.

A LOOSE HEAD.—If a horse has to be led through a low doorway, the secret of preventing him from damaging his poll is to give him a perfectly loose head, and never attempt to pull it down. He will lower it of his own accord, but any attempt to pull on it means that he will throw it up.

NITROGEN TO CARBOHYDRATES.—There should be a proportion of one of albumoids to four or five of carbohydrates for growing swine. One of albumoids to five and one-half of carbohydrates for the first part of the fattening period, one to six and one-half for the second part, and one to seven for the last part of the fattening period. Corn shows a proportion of 1 to 9.8, barley 1 to 7.9, oats 1 to 6.1, wheat bran 1 to 4.4, rye bran 1 to 4.4, wheat middlings 1 to 4.7, rye 1 to 7, new process linseed meal 1 to 3, pea meal 1 to 3, turnips 1 to 5.8, potatoes 1 to 10.6, beets 1 to 9.3

BUTTER.—The experiments made by Professors Dean and Harcourt at the Ontario Agricultural College on the use of preservatives in milk and butter were quite simple, and no public fuss was made about them. Twelve volunteers in good health, and from 18 to 22 years of age, took their meals at a special table in the college, and used butter containing one-half per cent. of borax as a preservative. For twenty-six days they consumed about 3lb. daily of this butter, and the quantity of borax ingested was therefore about $8\frac{3}{4}$ grains daily per man. They were asked to report any pains or unusual sensations, but no ill effects were experienced by any of them. The symptoms noted by Dr. Wiley, (U.S.A.) Department of Agriculture, in his experiments, were conspicuous by their absence.—From the "Creamery Journal."

LAME HORSE.—The old saying, "No foot no horse," is a true one, for no matter how perfect the horse may be in other respects, a lame horse is no value. The only safe rule for prevention of lameness or contracted weakness is found in the intelligent care of the feet of the growing colt. It is not enough to trust to nature's method of wearing away the horn, for even where the soil is of a gravelly nature and the horn wears away as fast as may be necessary, it may not wear even and thus keep the foot in a shape so that the weight will be evenly borne, and thus the foot may grow uneven in shape and the horse may become partially, if not entirely, ruined in consequence of the neglect. The care of the colt's foot is a simple matter, taking little time and requiring no expensive tools—only a good halter, a good rasp and a sharp knife, although the last will

not often be required, and should be used sparingly. An occasional inspection and the use of the rasp in shortening the toes and keeping the hoofs in correct shape are all that is required, as the quarters will usually not need attention. Never cut or pare the sole or trim out the heels of a growing colt; simply keep the hoof in true form and leave nature to do the rest, and thus avoid quarter cracks, splits, or straining of tendons on account of uneven weight pressure. Just one thing more while we are on the subject of the foot and its care. We have seen the gait of many in otherwise good horse ruined through the shortsighted policy of driving the colt with bare feet. The too customary practice of driving the colt without shoes as long as is possible without becoming crippled by sore or tender feet is an enormously expensive one, and cannot be too strongly condemned. The best mannered, best gaited horses we have ever handled had shoes on all four feet as soon as a harness was put on their backs. Not heavy shoes, with prominent calks, but medium weight plates for protection of the foot and to aid in giving an even, dignified movement in place of the colt's paddling gait. A little common sense care along these lines will save the horse-breeder much vexation and loss, will greatly increase the value and usefulness of his livestock and will relieve him of the need of calling the veterinarian.

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WATERING OF HORSES.—In discussing a few of the worst prejudices, those prevailing very widely in connection with the watering of horses may well be given first place on account of the large amount of harm and cruelty they often cause. It is a very common belief among grooms that horses required to be in hard condition should not be allowed to drink an unlimited supply of water, it being supposed that too much water is detrimental to hard condition. It is therefore a common practice in many stables to stint the horses in their water supply, and this stupid practice is frequently the cause of constipation, feverishness, and loss of appetite in horses besides causing the latter unnecessary suffering. The idea that it is necessary to water a horse sparingly if it is to be kept in hard condition is, of course, absolutely fallacious and absurd, and to hold such an absurd idea is a sign of gross ignorance. Horses ought always to be given as much water as they want to drink, and it is best to let them have continual access to it by putting a bucketful in their stalls or box. Another frequent practice in connection with the subject of watering, which is based merely on prejudice, consists in withholding water from a horse when it returns to the stable in a warm state after doing work. Frequently horses are kept for an hour or more without being allowed to quench their thirst on returning to the stable, meanwhile suffering greatly from thirst. This practice is also a senseless and cruel one, and it ought not to be followed. It has arisen through the mistaken notion that it is harmful to horses if they drink cold water when in a warm state, but in reality this is not all the case. It is perfectly safe, and certainly advisable, to let a horse drink some water when returning to the stable after work, even though it is hot. In the case of a thoroughly exhausted horse, after a long journey, it would not be a safe plan to let him drink as much cold water as he wants to at one

go—though a mouthful or two will do him good—but that is an entirely different thing from allowing horses which have done ordinary work to quench their thirst as soon as they get back to their stable. Horses which are ridden or driven long distances ought also occasionally to be allowed to drink some water whilst on the road, as this helps to keep them fresh and up to their work.

MILK TRIAL. At the Milk Yield Trials at the Royal Agricultural Show held at Park Royal in July last, the average yield of the milk of 15 Shorthorn cows entered was a trifle over 42lb., that is a little over 16 quarts, the highest yield being 59lb., very nearly 6 gallons or 24 quarts, and the fat percentage of the particular cow was 3.55, which is also good. The highest fat percentage of any Shorthorn cow was 4.48 which was as high as the Jersey average. The average milking yield of 13 Jersey cows was a little over 37lb., or about 15½ quarts, the highest Jersey yield being 52lb. 12oz., or about 20½ quarts. The highest fat percentage of Jersey cows was 5.60 and the average of 13 was 4.48.

PASTURE LANDS.—Some pasture lands here have been carrying stock for scores of years. That is, there have been continuous crops of grass taken off in the form of the cattle and sheep marketed, and the horse and mules raised and worked; working stock derive their strength and energy from the grass. It is calculated that 10 sheep weighing 100lb. each, remove from the soil which produce these as much as 30 bushel crop of corn on an acre. One milch cow regularly milked once a day and calf will remove from the soil as much as a crop of corn per acre.

CASTOR OIL.

THE uses of Castor Oil are manifold. Besides its ordinary medicinal use as a laxative or purgative, if well rubbed into harness, it makes the leather water-proof, keeps it from being touched by cockroaches or rats. It can be used instead of soap in making kerosene emulsion for spraying or washing orange trees. It is a good insecticide and fungicide if used with one part of kerosene, one part of sweet oil to one part castor oil. This will kill hair lice, cure ring-worm and mange on animals, cure scaly-leg on fowls and also mild cases of yaws in fowls if painted on the eruptions, and will kill ticks, fleas and bugs.

POULTRY NOTES.

EVERYBODY who keeps poultry should be having chickens hatched now. Already a great deal of mortality has been reported to us, especially among young turkeys. It is usually the diet that is wrong. It is particularly hard on the digestive powers of young birds to be fed ground corn when they are just hatched. It

pays to buy coarse oatmeal from the stores and feed young birds, principally on that for the first week. Failing that, the ordinary brown rice can be used, and for two weeks more the rice (taking particular care not to get the polished white rice) can be continued as the basis. If there are no duck ants about to put before the chicks, the ground should be dug over to supply worms for them to pick, and where this cannot be done, a good plan is to lay a lot of broad stones, or old boards down here and there, and then lift them in turn. A good many grubs and insects will always be found below. Failing all these, meat scraps from the table must be given. In some places, however, the young turkeys may be safely run where there are broad pastures, for there they will pick up plenty of insects. The mortality is usually where they have to be more confined. Over-crowding and foul ground is a fruitful cause of sickness and death. Chickens should not be fed on the same place twice running, and should only be fed a little at a time and always dry food up to a couple of months old. To feed anything sloppy to young turkeys especially is generally fatal. If the hens and chicks are kept in coops these must be shifted about. Water should always be provided and changed twice a day, making sure to clean out the dishes, and these should always be kept in the shade. When the chicks are a month old then ground corn can be used freely, especially our own country corn. The chief diseases of young chicks are, first, digestive troubles (including liver disease), through errors in feeding. Once a week a teaspoonful of Epsom Salts should be put in a pint of water, and no other water put before them so that they must drink this. The sign of indigestion is that the chicks have a huddled up appearance and refuse to eat. There is nothing better than making them drink a little Epsom Salts dissolved in water. And of course, correct the cause by following the procedure recommended here. Another trouble is yaws. This is caused by crowding the chickens in a coop at night amongst their own droppings. To prevent yaws the coop should be kept perfectly clean and should not be shut up close at night. When yaws do break out, the same Epsom Salts dissolved in water, should be given to the chickens and the eruptions painted every day with Tincture of Iodine, threepence worth of which with a camel hair brush, or failing this a feather, will last a long time. Then there is Gapes got from germs in the soil through the ground being foul. It cannot be got if the coops are shifted about and the chickens run on fresh ground. If the extent of the ground is limited then the soil can be turned over with a fork and if possible occasionally limed. Failing lime, wood ashes are useful. The symptoms of gapes are—the chickens gape their mouths continually as if trying to swallow something. To cure this trouble, take a strip of feather, one drop of turpentine or kerosene and two drops of sweet oil, dip the feather in the mixture, and taking the loose oil off, insert the feather quickly into the chicken's windpipe, giving it a twist round rapidly, and it will generally happen that little hairlike threads, which are really worms, will come out on the feather. As the chickens get older colds trouble them, and roup is really a very distressing disease. It is comparatively easy to attend to a few chickens, but when there are

a lot, the best thing to do is first to give the same Epsom Salts and the water, then confine them in a room or box and burn a little sulphur, or put a red-hot iron into Stockholm Tar so as to cause a smoke. Care, of course, must be taken that the chickens do not get too much of this. A little whiff of it at a time repeated several days is best. This will generally kill the germs that cause the cold. If there are only a few chickens they can be treated by hand, by taking the chickens up and washing the nostrils clean with a teaspoonful of Jeyes to a pint of water, and touching the nostrils and roof of the mouth with a little Healing or Eucalyptus Oil. These are all simple treatments and only simple remedies are given. There are other ways of treatment more elaborate but beyond the means or capacity of most of our readers. Those given we have found very successful.

Many poultry-keepers have an impression that a fertile egg ought of necessity to produce a chicken, given proper hatching conditions. There is no greater mistake; fertility is a question of degree, and eggs may be sufficiently fertilised to go on to the seventh, fourteenth, or even twentieth day without being able to hatch, while some even get as far as hatching, and yet they are but weak chicks.

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REGULATIONS AS TO FOWL-CHOLERA IN GERMANY.—With a view to the prevention of fowl-cholera in Prussia, regulations exist defining the steps to be taken to prevent its extension. The regulations may be summarised as follows:—Upon the outbreak of fowl-cholera the owner must at once notify the local authorities, isolate his fowls, and either burn the dead and slaughtered birds, or bury them with quicklime to a depth of about 20in. Upon being notified the local authorities are to transmit one or two dead birds to the official veterinary surgeon for identification of the disease. As soon as the official veterinary surgeon has confirmed the existence of the disease, the infected yard is to have a notice bearing the words "Fowl-cholera," exhibited at the principal entrance, and the provisions as to burial and isolation are to be strictly enforced. The removal from the premises of slaughtered birds during the period of isolation is prohibited. Premises are considered to be no longer infected when either all the birds are dead or eight days have elapsed since the last case of disease. The premises have then to be disinfected; dung, food remains, and dirt are to be burnt or buried with quicklime; floors, walls, doors, perches, food-troughs are to be thoroughly cleansed with hot-soda water (6lb. of commercial washing soda to 20 gallons of water), and lime-washed. If there is no flooring to poultry-sheds, the earth must be removed to a depth of at least 4in. and mixed with quicklime. When disinfection has been carried out the premises are declared free from disease by notice in the official Press.

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SUCCESSFUL TREATMENTS FOR GAPES.—Hold chick in left hand, and, with thumb and first finger of right hand, squeeze or pinch windpipe, beginning as low down in breast as possible, and work towards the head. If well done, one operation is generally sufficient, If not better in a day, repeat. This mode mashes the worms, and

they are easily coughed out. We also use the horsehair method. Take as heavy a horse hair as can be found, double and twist, leaving a loop at the doubled end about half to three-quarter inch long. The hair, when doubled and ready for use, should be at least six inches long. When operating sit on a low seat and hold the chick's feet between the knees, then with the left hand hold the chicken, using thumb and first finger to hold its mouth open. With right hand insert the horsehair into the windpipe and twist it a few times and remove. Readjust the hair and repeat as often as necessary to remove the worms.

COTTON.

A century or so ago cotton was a staple product of Jamaica. For some reasons—either from lack of skilled labour, or from the depredation of insect pests, which to this day continue to make havoc of cotton fields, the industry gradually ceased even as a minor product of the Island.

In days not very long gone by, lamp oil, nut oil, and wax candles, were our chief illuminators. To provide wicks for these lamps and candles the remnants of old time cotton fields, found in several parts of the Island, yielded a supply of cotton. Old African women chiefly gathered the article and with it spun coarse threads, wound them into stick-balls, which were readily sold in our markets and elsewhere at prices varying from a penny half-penny to threepence, according to size, and with these, estates lamps, and the lamps of the peasantry, and the candles of the better-to-do were supplied with wicks. Many English, Irish, and German old women of the immigrant class, also spun thread of a finer sort, and wove socks and stockings for use in their families, and which they often sold to their neighbours.

The discovery, introduction, and use of kerosene oil, with foreign made wicks, which almost entirely prevail in Jamaica, as elsewhere, have completely bowled out the use of cotton and till quite recently the article has ceased to be of any value.

History repeats itself. Attention is again being paid to cotton as a product likely to be of great commercial value to our Island. To promote further enquiry, and practical interest in the subject, is my purpose in contributing this article to the Jamaica Agricultural Journal.

Cotton grows readily in all parts of Jamaica, where soil, climate, and rainfall are agreeable. In several places it grows wild. Whether the kind be Sea Island, Egyptian, or the coarser kind of native growth, in our diversified soil, climate and rainfall, the article can be made a source of income to the growers, if only a ready market were available.

Whether in the present condition of our labour market, this article, which requires, prompt, careful, and delicate handling, can be successfully cultivated, as in the case of canes, coffee, cocoa, etc., on large plantations, is a problem. The Hon. T. H. Sharp with his well-known optimism and pluck, is trying to solve this problem.

The question of large cotton plantations successfully cultivated, will no doubt be settled in the near future. If reliable statistics can be made public annually or semi-annually, and it can be shown that cotton can be successfully cultivated in a large way, and made a paying concern, no doubt capitalists will be found ready to invest in the concern, and much of our land, now lying idle, will be brought under cultivation of the article, and cotton added as one of our chief staples.

Be this as it may, there, however, can be no doubt, that our peasant settlers, tenants, and householders, have before them a bright prospect in the growth of this article on their small holdings, if only a ready market were opened to them. In this Parish (Trelawny) the Sea Island variety grows and bears luxuriantly in the uplands of Albert Town, Warsop, and adjacent districts. I distributed a lot of seeds to the Warsop school-children early in last year, on condition that they reported to me as to growth and harvest. I have been pleased with the report of several intelligent boys and girls. They had planted the seeds, taken care of them, and many now have nice little lots of cotton at their homes. But then the question comes—and it is the crux of the matter, “What are we to do with the cotton”? An old lady at the same place to whom I gave a handful of seeds at the same time, planted them, and she has a fine lot in her house. She is between 70 and 80 years, and she is only fit to grow cotton, watch the trees and gather in the crop. She also puts the same question, “What can I do with it”? There are thousands of our boys and girls and feeble old people that would gladly grow the article, and take a pride in reaping it, if they only had a market within reach of them where they could sell their small quantities, as in the case of coffee, pimento, annatto seeds, etc.

This brings me to the point that has been agitating my mind for some time. I put it in the form of a question:—“Why can't we make cotton an article of commercial value to our people, so that they may be able to sell their one, two, or more lbs. in the nearest shop, the shop-keeper collecting the article in small quantities, and selling it to the larger merchants, as they do with coffee, ginger, pimento, etc., and so place this valuable commodity of our Island on a commercial basis in all parts of the Island.”

In this question I have before me the example of Hayti. When on three occasions I visited that Island and travelled through it, I was struck with the commercial value of cotton to the mountain people. They gathered their cotton, as they did coffee and cocoa, and on Saturdays brought their parcels to the towns and sold them to the shop-keepers. In each shop a bag or barrel was kept, and the article purchased in small quantities were placed in the bag or barrel, and then sold to the exporters of produce. There was quite a trade in this article, especially at St. Marc.

I beg leave to suggest that under the auspices of the Jamaica Agricultural Society, trade in this article be promoted. At the next general meeting the question might be discussed, the principle agreed to, and a sub-committee appointed to consider more fully the question and prepare details of the scheme. The question is one of supply and demand. If the article is wanted let the merchants tell

the shop-keepers, the shop-keepers the people, and cotton will flow into the country shops more regularly than pimento, coffee, or annatto seeds. This is an article in which all persons, young and old, can be engaged in supplying. It will give us another basket for our eggs which old women, school-boys and girls, sickly people, who are unable to do hard work, can supply. It will certainly largely add to the general prosperity of our Island.

W. M. WEBB.

Woodlands, Stewart Town, February, 1906.

(Knowing that Mr. Webb had travelled in Hayti and seen a cotton industry being worked there by small cultivators, we asked him to write on the subject for the "Journal.")

THE growth of the Sea Island Cotton plant in Jamaica, the yield and the quality of the product, have all been found satisfactory, but it has been most unfortunate that Cotton and Cassava, both hardy plants, often to be seen growing half or wholly wild, should when grown on a large scale, have been attacked by caterpillars beyond anything known hitherto—in the annals of our agriculture. It happens, however, that periodically, we have a year when caterpillars are very evident. Five years ago much damage was done to cassava, and other small crops, and even guinea grass, by small armies of caterpillars. They passed off, and in a few months the grass and the cassava, etc., were growing as if nothing had happened, and until this year we have not had these caterpillars again. It is not alone the large plantations of cotton and cassava that have been visited. In St. Elizabeth, the small patches of cassava (which are all over the districts of that parish and so comparatively close together) have been attacked and damaged. We are hopeful that history will only repeat itself, so far as the caterpillars are concerned, at the same interval as before, *i.e.*, if it is bound to be repeated. Such large quantities of caterpillars, too, have been destroyed by the application of Paris Green, that it is possible a severe check has been given to them, and that such a plague will not recur to any dangerous extent. However, all cotton has not been attacked. We ourselves planted a little experimental patch in order to observe its growth, and in the hope that some pests would attack it, in order that we might study them and know how to deal with them. But nothing happened except a good crop (it was only a chain) and we have not heard of any small settlers' plots being attacked. All the damage has been done in St. Catherine, but it is only there that it has been grown on a large scale. An attempt was made to get cotton grown by small settlers in St. Elizabeth in the dry parts, where they had a very limited number of products that they could raise because of the small rainfall. It was quite natural they would not know how best to deal with cotton at first, and we did not look for first-rate results to accrue, but because of poor results in their first attempts, the peasantry did not go on with its cultivation. In a dry climate cotton grows well, and the crop can be picked without loss by heavy rains, while the quality is always very fine. On the contrary, in the upland districts referred to by Mr. Webb, where the soil is rich and moist, though the climate is cool, the cotton plant

grows exceedingly luxuriant and yields very abundantly, and with very little trouble; the staple is long and silky, but the texture is not so strong as the cotton grown in a drier climate; still it is fine cotton. The trouble in these districts would be to get the cotton picked without rain spoiling it. The question of local markets was settled in St. Elizabeth if the cotton had been produced. The two things depend upon each other. If there is plenty of cotton produced, merchants will be ready to purchase it, but they cannot deal with a few pounds here and there. On the other hand, probably if a merchant made it known he was ready to purchase quantities at fair prices the peasantry would grow it. Anyhow we are loth, very loth, to give up the idea of establishing Sea Island Cotton as a staple crop in Jamaica. We here are apt to sneer at Hayti, but they produce plenty of cotton there. It is a regular article of export. They have even cotton-seed to export as we were approached once to try and find a market for seed here. They also produce cocoa and coffee to a far greater extent than we do, in spite of their revolutions. However, we rather think we expect much larger profits here than they do in Hayti, and there would be the question to settle first, whether the people would consider themselves paid by getting 2d. per lb. in the seed from the local merchants. Meantime, we shall have to wait to see if the buying company is going to continue when so little is being grown.

COMMENTS.

TO CORRESPONDENTS.—Postage TO this Office is NOT free. All correspondents who are not addressed as Mr. or Esq. should put their proper designation in brackets before their names, (Miss) or (Mrs.) or (Revd.) or (Dr.) as the case may be.

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SHOWS.—Savanna-la-Mar Branch have decided not to hold their Show, postponed from 1st January last to Easter Monday, but it is likely will resume on their own usual date, 1st January next. The next St. Ann Show will be held at Brown's Town on the 1st of August, and the year after at Thicketts. There will not thus be two large Shows held in St. Ann in one year, but one at Brown's Town and one at Thicketts in alternate years, which is a very good system. The Hanover Show will be held at Lucea on 1st August also. It is likely Kendal Show will be held in November as formerly. We hope that it will be held. A small Show will be held by Appleton Branch at Siloah on Easter Monday, and one also at Deeside, Trelawny.

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NEW BOOKS.—We have received two little books from Mr. E. J. Wortley, Assistant Chemist, the first written for use in the public elementary schools, and the second for the information of strangers in the island, although it will also be useful to have in every home here for reference. The first book is entitled, "Agricultural Practices and Morals," and is neatly illustrated. It deals shortly and simply

with the selection and sowing of seeds, how the plant feeds, the watering, transplanting, pruning and weeding of plants, how to deal with insect pests and diseases ; how to deal with the soil, digging, and draining ; the proper care and use of tools ; picking, preparing, packing and marketing of fruits ; the care and management of domestic animals, with some notes for teachers. At the end there is a list of "Agricultural Don'ts" which it is hoped, will be approved by the Board of Agriculture and the Board of Education, and be hung up as a chart in all public elementary schools, to be repeated over at intervals by the school children so that the various "Don'ts" will be fixed in their minds. The most important "Don't" we think, is "Don't" tolerate the "Prædial Thief." If people around would shun a known habitual thief, refuse to speak to him, until he employed himself in regular work, we would probably find Prædial Larceny quickly decreasing. The other book, "Fruits and Other Food Products of Jamaica," is also illustrated. It describes the various fruits and the trees and plants bearing them, the time of the year they are in season, and gives the prices to be paid for them. The price of this book is 1s, but the edition is already sold out.

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SWEET CASSAVA.—When the Jamaica grown tubers of the Colombian varieties of Sweet Cassava, originally practically free from Prussic Acid, were analysed, they were found to have increased their content of Prussic Acid ten-fold,—the increase being in the cortex (the part immediately below the skin) the inside of the tubers only containing faint traces of Prussic Acid. For table, take a good, thick-paring from the Sweet Cassava with the skin.

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RAT VIRUS—Wherever rats are plentiful Rat Virus will be found most effective in clearing them out and far safer than the ordinary Rat Poison. We have had a good deal of correspondence about this article, and we have again to explain that it is not a liquid, powder or paste, but is sold in the form of a stiff jelly. This requires to be melted in some hot water, and then crusts of bread, or corn, are steeped in it. The jelly contains the bacteria of a disease peculiar to rats and mice, and so when these animals eat the bread or corn the disease is introduced into their system. It takes some time to develop—at least seven days, and not longer than 14 days,—and it is very contagious, so that if even one animal takes the bait it might be spread through all the rats in a building or neighbourhood. This is a most wholesome method of ridding buildings, pennis and fields of this most destructive of vermins, rats.

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ORANGE SALES.—A correspondent writes :—"Have had glorious account sales of oranges all season. Just got one to-day for fruit sold, 111 boxes on or about Christmas, ranging from 8s. 3d. to 9s. for each box. The previous fortnight's price was 8s to 9s.

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BANANA SOILS.—From a report on Banana Soils in St. Mary, founded on observations made by Mr. Cradwick on the subject, together with samples of soils taken by him and analysed by the Chemist, it is shown that there is still a great reserve of banana-

growing power in St. Mary soils. Some particular fields and some odd patches in certain fields need the addition of humus, but on the whole, what is wanted, is more extensive drainage, particularly in the direction of deeper drains, so that the sub-soil may be better aerated, and more deep forking of the bananas. Thus trenching will improve the bananas, but especially the deep rooting cocoa.

THE COLONIAL EXHIBITION, 1905.—We have received from the West India Committee, a book of 50 pages, stylishly got up and beautifully illustrated, being a Souvenir of the Colonial Exhibition held at the Crystal Palace. The price of this is 6d. each. We shall be glad to send this to anybody post free on receiving a sixpence.

SHIPPING OF ORANGES.—Principally, we believe, in connection with the shipping of oranges, an amendment is to be made to the Agricultural Produce Protection Law, to compel each shipper to register one distinctive Trade Mark, which must be used on all his produce, instead of as present having liberty to register an unlimited number of Trade Marks if he pleases. At the same time, any other distinctive marks can also be used on the packages, in addition to the one Trade Mark registered.

ELDER DEMPSTER & COMPANY CONTRACT.—Sir Alfred Jones is much in error as to the work of the Agricultural Society when he states in his letter to the Governor : (published on page 93) “ I can quite understand that the peasantry may require Instructors, such as the Agricultural Society is giving in the growth of produce for local consumption.” Why, immediately the Agricultural Society was founded and ever since, its work has most largely been directed towards getting in touch with the peasantry, as producers of the bulk of our exportable products, in order to help them to improve the quality of their produce, to produce more from a given area of land, to guide them as to what products the markets wanted, and in what form these were wanted. The Society's Local Instructors were appointed primarily with reference to the failing coffee industry, to arrest its decay and press its further development. Secondly, the Society has worked at getting more local foods produced so as to counteract imported foodstuffs, such as corn, beef, pork, milk, poultry, vegetables. If the large proprietors do not need the help of an organised Society in their trade or do not appreciate it, (which of course many do) the small settlers do need it and now realise this, if they did not do so at first before they realised what an Agricultural Society meant.

SHOWS TO BE HELD

THE following Shows are arranged :—

Appleton, Siloah, Easter Monday.
 Deeside, Trelawny, Easter Monday.
 St Ann, Brown's Town, 1st August.
 Hanover, Lucea, 1st August.
 Manchester, Kendal, — November,

BRANCH NOTES.

ABOVE ROCKS.—The usual monthly meeting of this Branch, was held in St. Mary's School-room, on Friday 9th. Mr. E. E. Waugh was voted to the chair. Other members present were, Messrs. C. R. Creary, (Treasurer); E. B. Galloway, Alex. McDonald, Naaman Lewis, Simeon Richards, Walter J. Lobban, Eml. Douglas, James Ellis, Charles E. Creary, W. L. F. Vassall and the Secretary. The minutes of the last meeting were read and confirmed. The meeting dealt with several important matters. The Secretary handed in his resignation, which was accepted with regret. He has left the district. The Treasurer's report was read and adopted. Messrs. Vassall and Waugh spoke of the work done by the Secretary since the formation of the Society to the present time. The Secretary addressed the meeting. He asked the members present to continue their interest in the Society, and urged them to resist all efforts to split up or remove the Branch elsewhere, as he had been informed that some busy bodies were trying to start another Branch near by. He was not referring to the Sergeantville Branch. The next meeting will be held at the same place at 3 p.m., on Friday, March 9th, when a new Secretary will be elected. All the members are requested to be present. Before closing my last report, I must ask those members who have not paid up their subscriptions for the current year to do so at once. An address was presented to the Secretary, to which he replied.—W. THOMAS LINTON, Secretary, Glengoffe P.O.

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LAMBS RIVER.—The Annual General Meeting of this Branch Society was held at the Mount Hermon Schoolroom on the 9th of February, 1906. Present: J. R. Williams, Esqr., President, Revd. T. B. Prentice, Vice-President; Messrs. D. Brown, Segree Lawrence, U. L. Brown, C. Whittingham, T. A. Malcom, G. Warburton, and some visitors. The minutes of the last meeting were read and confirmed. Revd. T. B. Prentice consented to keep the Society's Plymouth Rock Fowls (1 cock and 3 pullets) on the same terms as Revd. W. S. Smith had them. Revd. T. B. Prentice reported that Mr. Barrett had handed over the fowls to him and they were in good health. He also reported having received the tools, which are the property of the Society, from Mr. Barrett. In the absence of the Treasurer, his account with the Society to December, 31, '05, was presented, showing balance to the credit of the Society on January, 1, '06, £3 8s. 7d. The President reported that Mr. Barclay had arranged to import two milch goats from Barbados, and had promised the refusal of them to the Society. It was agreed that the next meeting should be early in April so as to arrange for exhibits to Paradise Show on April 16th. The Secretary was requested to ask Mr. Cradwick to attend the next meeting on April 6, 1906. On the proposal of the President seconded by Revd. T. B. Prentice, it was resolved to record the Society's appreciation of Mr. C. N. Barrett's services as Secretary for four years, and its regret that his removal from this district has terminated his connection with the Society. It was directed that this formal expression of its gratitude be conveyed to Mr. Barrett by the Secretary. The following new members were duly elected:—Mr. R. E. Anglin, Lambs River P.O., Mr. Jas. McIntosh, Catadupa P.O., Mrs. Annie Graham, Lambs River P.O. Mr. P. A. Smellie, Lambs River P.O. The Officers of the Society for the ensuing year were appointed as follows:—J. R. Williams, Esq., and Revd. T. B. Prentice were re-elected President and Vice-President respectively, Mr. T. B. Lawrence was re-elected Treasurer, and Mr. P. A. Smellie, Lambs River P.O., was elected Hon. Secretary.—P. A. SMELLIE.

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HANOVER.—The annual meeting of this Branch met on the 17th February in Lucea, the President, C. A. Cover, Esq., B.A., in the chair. The office bearers for 1906 were elected. Hon. President, Hon. G. A. L. Santleben; President, C. A. Cover, Esq., B.A.; Vice-Presidents, Revds. J. Yair, A. P. Kennedy, J. M. McDonald; Secretary, Revd. J. F. Gartshore, M.A., Flint River P.O.; Assistant Secretary and Treasurer, F. L. Roper, Esq., Lucea P.O. Fifteen Elected Members.—Mrs. Yair, Messrs. S. Webster, G. H. M.

Davis, J. U. Neilson, B. R. Clare, E. M. Gordon, W. W. Williams, D. W. Talbot, J. N. Malcolm, R. A. Hogg, E. E. Melville, D. A. Webster, Fyfe Roxburgh, James Grant, T. S. Robinson. Chairmen of District Committees same as last year. It was reported that the debt had now been cleared off. The presence of the debt, which had been incurred by the Show of 1904, hindered the Society from holding a Show in 1905. Now that the debt had been cleared off, the Society agreed to hold a Show on the 1st August, 1906. The Prize List was drawn up after careful consideration of each item. The Secretary was instructed to write to His Excellency and invite him to open the Show. Agreed to defer the arrangement as to judges, etc., till the meeting in May.—J. F. GARTSHORE, Sec.

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FAIR PROSPECT.—The postponed annual meeting of this Branch came off on Saturday, 17th February, 1906. Present: Messrs R. H. Elworthy, (presiding), John Burke, Thomas Powell, Samuel Brown, N. A. Wilson, Wm. Panton, Albert Kelly, Alexander Berry, Josiah Munroe, Joseph Thompson, W. A. Ellison, John Panton, L. A. C. Brown, W. Z. Buckley and Mr. Arnett, (Local Instructor). There was also a goodly number of visitors. Minutes of last meeting were read and confirmed. The Treasurer's financial report was read, showing the Society to be in no less a position financially than last year—accepted. The Secretary's report was read and adopted. Same shows an increase of eight new members during the year and a decrease of five by deaths and removal. The President's address was well received. Appointment of Officers:—R. H. Elworthy re-appointed President, the members present pledging themselves to back him up this year more than ever in their attendance, etc. Messrs. N. W. Speed, L. A. C. Brown, and John Panton appointed 1st, 2nd and 3rd, Vice-Presidents respectively. Mr. W. Z. Buckley re-appointed Secretary, but declined on the ground that his stay in this locality was unreliable. Being, however, pressed by the members he accepted, under the condition that so soon as his hour of his departure comes, the business of the Society would not interfere with his personal business. Mr. W. A. Ellison was appointed as Secretary but declined the offer, showing as his reason pre-arrangements. He was, however, asked to reconsider his refusal, and he afterwards reluctantly accepted the position. Appointment of Standing Committee had to be put off for next meeting as Mr. Arnett had to address the gathering. There was a motion passed to the effect that Mr. John Barclay, Secretary of the Parent Society, be asked to visit the Branch at an early date so as to throw some new life into the Society. There seems at least every probability of his securing a good Poland China Boar within the Society's means. This part of the business being closed, Mr. Arnett delivered his lecture, at the close of which several questions were asked and answered.—W. Z. BUCKLEY, Sec.

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SPRINGFIELD, St. James.—The third annual meeting of this Branch was held at the Kensington Schoolroom, on the 23rd February, 1906. Present: Revd. T. C. Hutchison, in the chair, Revd. J. A. Jones, Vice-President, Mr. J. Jacob Irving, Treasurer, Mr. D. Adolphus Smart, Secretary, and other members of the Society. Minutes of meeting of the 15th December, 1905, were read and confirmed. The 26th January was the proper time for the meeting, but on that date the Society held a Local Show. The Secretary then read the following re that day's proceedings:—On the 26th January, 1906, there was a large gathering of people at Kensington, as exhibitors and visitors, as well as those who put in their appearance to attend a meeting to be held by Lawyer A. C. Grant—a candidate for the Legislative Council. Mr. A. Facey was not present as per request, Mr. A. G. Murray of Montego Bay gave valuable assistance in the judging of the exhibits, which was carried through with much satisfaction. At the close of this, Mr. A. C. Grant's meeting gave an additional lustre to the days pleasure. The Society's annual meeting could not be carried through, it was therefore postponed until the last Friday of February, when rewards will be paid to the prize winners. With this decided the meeting dispersed. The following letters were read for the Society's information:—(a) From J. Haddon & Co., stating that they are still expecting the Society's produce. (b) From Mr. Cradwick, recommending Mr. Arnett's Angora Ram for the Society's use. (c) From Mr. Arnett, telling of the disappearance of the animal by a thief. (d) From Mr. Barclay, having some reference to the work of the Society. (e) Greetings from

Messrs. D. Reid and E. Perkins, members of the Society. The Treasurer then rendered his yearly report. It was moved by the Revd. James, seconded by Mr. D. Adolphus Smart and carried, that the report be accepted as correct. The roll was revised. Revd. James thanked the President, Treasurer and Secretary for their year of services to the Society, and therefore, moved a vote of thanks, which was heartily given by all present. The same was accorded to the Revd. Jones as Vice-President. The members of the executive were also thanked for their services. The next business was to elect Officers for 1906. Revd. C. T. Hutchins, Mr. J. Jacob Irving, and Mr. D. Adolphus Smart were re-elected to their offices as President, Vice-President, Treasurer and Secretary. The Executive Committee now consists of the following in addition to the officers:—Messrs. J. Wallace, J. Shaw, S. Leach, W. T. Reid, A. J. McLaughlan, W. McGhie, A. Hall, E. Perkins and W. Leach. The following new members were elected: Messrs. Robt. Clarke, H. G. Murray, George Phillips, Montego Bay P.O. Mr. Irving suggested that a Penny Bank be established in connection with the Society. It was agreed to discuss this subject at the next executive meeting. Moved by Mr. J. Shaw, seconded by Mr. W. T. Reid and carried, that the Secretary correspond with Geo. Heron, Esq. referring to his pigs advertised in the February No. of the Journal. It was decided that the next executive meeting discuss the advisability of holding a Social Meeting on the anniversary of the Society's formation. The following members won prizes at the Local Show held on the 26th January, 1906:—Coffee.—Messrs. W. T. Reid, 1st.; Samuel Leach, 2nd.; A. J. McLaughlan, 3rd. Ginger.—Messrs. David Bradbar, 1st.; Robert Mason, 2nd. Cane.—Messrs. P. H. Tharpe, 1st.; B. B. Morris, 2nd.; Wilford McGhie, 3rd. Yams.—Messrs. Samuel Leach, 1st.; John McLaughlan, 2nd.; Alexander Stephens, 3rd. Vegetables.—Messrs. David Bradbar, 1st.; W. T. Reid, 2nd.; J. J. Irving, 3rd. Tools.—Messrs. P. H. Tharpe, 1st.; Wm. Leach, 2nd.; Saml. Leach, 3rd. Starch.—Messrs. J. Chisholm, 1st.; Samuel Leach, 2nd., Miss L. Wilson, 3rd. Cocoa.—Messrs. Samuel Leach, 1st.; William Leach, 2nd.; Samuel Leach, 3rd. Goats.—Messrs. William McFaddyen, 1st.; Richard Taylor, 2nd.; B. B. Morris, 3rd. Fowls.—Miss L. Wilson, 1st.; Messrs. H. E. Buckner, 2nd.; Josiah Linton, 3rd. Donkey.—Messrs. A. R. Mullings, 1st.; F. B. Evans, 2nd.; William Leach, 3rd. The Treasurer was authorized to pay the prizes. All felt that a profitable day was spent, while the meeting was brought to a close. —D. ADOLPHUS SMART, Sec

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ÆOLUS VALLEY.—A meeting of this Branch was held in the Schoolroom on Friday, 16th February, 1906. Present: Revd. A. Cole, President, Messrs. R. Bennett, N. Walker, J. Alpin, M. Brown, C. Richards, S. Davis, A. Davis, A. Gibson McLean, jr., D. Harding, J. Scott, A. Bogle, E. Lumsden, the Secretary and some visitors. Minutes of the last meeting were read and confirmed. The Secretary read a telegram received 5.15 on the evening of the 15th inst., from Mr. Barclay, stating his regret not being able to come and address this Branch as promised, two of his Clerks being sick. The President having been informed that some of the members are about to sever their connections with this Branch, delivered an able and encouraging address, showing the folly and mistake of giving up what they began, but to do their best for the up-keep of the Society, etc. Mr. McDean concurred with the President in all that had been said. Mr. Harding asked if the Society had given up inspection of holdings. The President and other gentlemen spoke of difficulties, inclement weather, rains almost every day in the past. Mr. McLean proposed that they begin work at once so as to be prepared for a visit. Mr. Harding again asked what had been done by way of report on the question of prædial larceny as was decided at previous meeting. The President pointed out that he is not aware of the fact of a decision arrived at, unless it must have been done in his absence. He shall have the Secretary look up the minutes. Mr. Walker brought forward the Loan Bank question for the second time, and urged its formation at once. The President asked the nature of forming the Bank, and on what security the money can be loaned; by two good sureties responded Mr. Bogle. At this juncture, six members were elected by vote, as Directors, viz., McLean, Bogle, Richards, Scott, Jones and Walker. The meeting agreed to raise £7 to start with by this and the 31st March, when rules and bye-laws, etc, shall have been made and bank brought in working order.—R. A. JONES, Sec.

T I C K S.

Malvern P.O., 13th January, 1906.

SIR,—I have used the Sulphur Blocks that you kindly sent me, and found that horses, mules and asses took readily to No. 37, which was the first block that I tried. When it was finished I used the others, although they lick them also, the process was very slow. With such a small quantity, I don't think one can form an opinion as to its effect on ticks.

I have always found small doses of sulphur good for stock, and as they will lick these blocks, if they are not too expensive, I would give them a trial. For the last 20 years I have used 1 pint of coal tar to 2 pints of castor oil, and found this mixture most successful as a dressing for cattle. Castor oil remains moist on the stock longer than any other I have used, so has proved the best. I would strongly advise pen-keepers who are still troubled with ticks in their stock, to try this dressing.

Yours truly, STAFFORD MAXWELL.

Quebec Park, Port Maria, 20th February, 1906.

SIR,—I use for ticks the same dressing I use for wounds and sores of any kind on cattle.

The late Mr. Philip Delisser, V.S., who was a Jamaican, and understood the conditions out here, at my request, made up a prescription that would answer the purpose of a dressing for wounds, and also be death on ticks and at the same time cheap. After many experiments, he hit on the following, which I have used for years and found effectual. The ticks are not so bad on this property as they used to be.

Dressing for Wounds and Ticks.—4 gallons heavy black oil. 1 gallon piroligenous acid. 1 gallon tar. Cost for six gallons, 5/. More tar may be added if dressing too thin. Cost of heavy black oil (crude petroleum) in America, 13 cents per gallon. Piroligenous acid, 8 cents per gallon.

Yours truly, R. P. SIMMONDS.

"Can cattle ticks be effectually exterminated from pastures? We would say that with individual effort only, No! But united action, yes!"—Bulletin Louisiana State University.

CORRESPONDENCE.

Moreland, Little London, 1st March, 1906.

SIR,—Sir Alfred Jones made me a present of 72 Starlings for turning out; in consequence of gross neglect and carelessness everyone died. Should Sir Alfred send any more, I have asked him to deliver them to you, as I shall be a few months in Cuba. On arrival the birds should be placed in a wired room, or other large place, and given a lot of water to bathe in, which should be changed four times a day, as they will not bath in dirty water. They should be fed at least four times a day, on bread, soaked in milk, which must not on any account be sour. In about a week they will be fat and strong, fit to turn out. The best time for turning out is before 8 a.m. All the birds (should the number be under 30) ought to be turned out on one place. Cockroaches and May Bugs are good for feeding. The Magpies and Starlings in St Mary are doing well as tick-eaters. Two Java Sparrows are now at Negril and in Westmoreland. A few are at Cave Valley in Hanover.

A gentleman in St. Mary has just written me as follows:—"You cannot

realize how quickly a bird eats ticks off cattle until you see the Magpie perform the job." Just so, the Magpie is the finest tick-eating bird in the world, the Starlings being the next best. The Starling is great on scorpions also.

Yours truly, R. T. TAYLOR-DOMVILLE,

Shanton, Bog Walk, 3rd March, 1906.

SIR,—As it may not be generally known by all Pen-keepers, I send you the following for publication in your widely read Journal, (if, of course, you think it necessary).

The Double Vaccine.—The first is used as a sort of preliminary before using the 2nd vaccine. These vaccines are for use on ordinary animals (not pedigree stock).

The Single Vaccine.—The effect of this vaccine being much stronger on prize animals than on ordinary animals, it is advisable to use the single vaccine on pedigree stock.

Hoping that this may be of use or interest,

Yours faithfully, M. ROBERT.

Maidstone, St. Margaret's Bay P.O., 26th February, 1906.

SIR,—We are glad to report to you Mr. Arnett's visit to Maidstone on the 16th inst., although it was on a Friday when most of the people were away to their different fields to make ready for Saturday market, many were present to hear his instruction which was so helpful. We hope he will always give us such visits; it was quite an important day for Maidstone. The seeds which I got from the Secretary of this Branch Society, two packets, cabbages and turnips turned out well, I have shown them to Mr. Arnett, who was very pleased to see them.

Yours truly, J. S. WILLIAMS.

Heavitree, Harry Watch P.O., 22nd February, 1906.

SIR,—In the Journal of the Jamaica Agricultural Society for February, the growing of Sweet Peas, among other flowers, is recommended by Mr. Chas. L. A. Rennalls. Will any of your readers kindly say what varieties and in what part of the Island they have successfully grown them.

Yours faithfully, J. H. WATSON.

(Sweet Peas have been grown to our knowledge at Mandeville, Christiana, and Port Royal Mountains. Try mixed varieties and find which thrive best and which you like best.—Ed.)

"Is the importation of Johnson Grass Seed forbidden by law in Jamaica—it should be? I have learned of great loss by it in Texas, and I see it about here in Cuba, a frightful weed like degenerate guinea or Kaffir corn. A sort of useless millet, so to speak with a poor and scattered head."—JNO. LOCKETT, Sagua de Tanamo, Cuba.

(No, there is no prohibition against this particular grass seed. But no body is likely to try it.—Ed.)

Jamaica Agricultural Society

PRIZES OFFERED

FOR

Best Kept Small Holdings.

The following scheme is for the encouragement of cultivation upon homesteads, and takes the house and sanitary conditions into account in the Scale of Points proposed.

RULES.

1.—Prizes will be awarded for the cultivation of Land, and the establishment of permanent or staple crops.

2.—Only persons holding not more than 20 acres of Land to be allowed to compete, and the land entered for competition must be one piece, not divided by other persons property intervening; but a road, river, or gully may run through it.

3.—The residence of the competitor to be on the ground entered for competition; and such residences and grounds to be situated near (within a stated distance) of a Main or Parochial Road.

4.—The prizes to be allotted in three classes :

First Class Holdings not over 20 acres.

Second Class Holdings not over 10 acres.

Third Class Holdings not over 5 acres.

5.—No person to compete in more than one class, but competitors may select any class for which he or she can qualify.

No prizes will be awarded unless there are at least twice as many competitors as there are prizes offered.

6.—Prizes to be given in each Parish as follows :—

	1st Prize.	2nd Prize.	3rd Prize.	4th Prize.	5th Prize.
	£ s d.	£ s. d.	£ s. d.	£ s. d.	£ s. d
1st Class Holdings not over 20 acres	4 0 0	3 0 0	2 0 0	1 5 0	0 15 0
2nd „ „ „ „ 10 „	3 0 0	2 0 0	1 10 0	1 0 0	0 10 0
3rd „ „ „ „ 5 „	2 0 0	1 11 0	1 4 0	0 16 0	0 9 0

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No. 4.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 22nd March, 1906, at 11.30 a.m. Present:—Hon. W. Fawcett, Deputy Chairman, presiding; Hon. R. P. Simmonds; Messrs. R. Craig, C. A. T. Fursdon, Ralph Hotchkin, E. W. Muirhead, and the Secretary, John Barclay.

The Minutes of the February Meeting having been published in the current Journal, were taken as read and confirmed.

Day of Meeting. Owing to the Kingston Half-Holiday being on Wednesday when business could not be done in the afternoon, it was resolved to resume the original day of meeting, Thursday, in the same week.

Vacancies on Board. The Chairman stated that there were two vacancies on the Board of Management, through the resignation of Mr. J. Allwood, C.M.G., and although they had not received the formal resignation from Bishop Gordon, it was announced that he would not return to Jamaica, and his successor here had been appointed.

On the motion of Mr. Craig, seconded by Mr. Hotchkin, the Hon. George McGrath, Custos of St. Catherine, was appointed a member of the Board of Management in the room of Mr. Allwood. It was decided not to take any steps in the meantime with regard to Bishop Gordon's seat on the Board.

Freight Rates. The Secretary read letter from Capt. Forwood of the Hamburg-American Line, quoting 2s 6d. per box and 5s. per barrel through freight to London and Glasgow via New York, also letter from Mr. Nash on behalf of the Royal Mail Company, saying that their rates were 3s. per box and 6s. per barrel through freight to London and Glasgow via New York, and that they did not propose to reduce these rates, as owing to their superior accommodation and storage supplied in their ships, they had no difficulty in securing these rates.

Hurricane Insurance. The Secretary read the following letter from Mr. R. S. Gamble :—

Kingston, Jamaica, 18th March, 1906.

SIR,—Referring to the investigations made by the Committee, which I was requested to join, I beg leave to enclose a circular letter dated February this year from Messrs. Henry Head & Co., Limited, London, setting forth the terms on which they are now prepared to undertake Insurances against Storms and Hurricanes, and submitting a specimen form of Policy and a proposal form.

You will observe therefrom that arrangements have now been extended to cover losses caused by severe gales as well as hurricanes, which will remove an element of uncertainty as to the risk really covered ; but, coupled with this, is the provision that the whole estate should be insured, and not merely specially dangerous parts thereof, and that the insured should bear the first five per cent. of the loss calculated on the total amount insured.

The reasons for this are fully explained in this circular.

Special rates will be quoted on application for Buildings in Kingston and other towns, and Messrs. Head say that they are in communication with the Colonial Office as to an offer to insure the Government Buildings in the various Islands at a moderate rate.

I have also been advised that Mr. Christopher Head has sailed on 3rd. inst. for Barbados per the "Atrato" intending to visit Grenada, St. Vincent, the Windward and Leeward Islands and Porto Rico, and then come on to Jamaica, in order to assist in starting this business ; and I presume that every assistance in the way of information, etc., will be given him by the Board of Agriculture and the Board of the Agricultural Society on his arrival here.

In the meanwhile letters would reach Mr. Head if addressed to care of J. Chalonier Lynch, Esq., Barbados.

I shall be glad if you will kindly submit this information and the accompanying papers to the Committee, the Board of Agriculture or the Agricultural Society as may be best ; and I regret that I shall probably be absent from the Island when Mr. Head arrives.

Yours faithfully, R. S. GAMBLE.

The Secretary also submitted a letter from the Colonial Secretary on the same subject, enclosing copy of a despatch from the Secretary of State for the Colonies, giving fuller particulars of the scheme for Hurricane Insurance arranged at Mr. Hesketh Bell's suggestion ; and in his despatch Lord Elgin expressed the opinion that the scheme was deserving of every encouragement by the Government, and that he would also ask them to consider the matter of insuring Government buildings for which a special rate was quoted.

Mr. Craig said the first thing the Board should satisfy itself of before going further was the ability of Messrs. Head & Co. to pay any claims that might arise.

It was agreed that the matter should stand over until Mr. Head arrived in the Colony.

Contagious Diseases The Secretary read the following letter
Animals Law. from the Colonial Secretary :—

1946-2014. Colonial Secretary's Office, 5th March, 1905.

SIR,—I am directed by the Governor to acknowledge the receipt of your letter dated the 23rd ult., submitting the revised draft of a Bill entitled—"A Law for the prevention of the spread of Contagious Diseases among Animals."

2.—His Excellency would be obliged if the Board of Management of the Jamaica Agricultural Society would be so good as to favor him with an estimate of the annual cost of carrying out the provisions of the proposed Law and to say how they consider it should be met.

I have the honour to be, Sir, your obedient servant,

T. LAWRENCE ROXBURGH, Asst. Col. Sec.

The Secretary also stated that on the suggestion of the Hon. J. V. Calder, the following additional clause to become Section 2 of Clause 3 (previous Section 2 becoming Section 3) had been submitted to the Live Stock Committee, approved of and advised to the Colonial Secretary :—“ Any stock owner having good cause to believe that stock depastured on land contiguous to land in his own occupation are affected by any disease comprised in Section 2 of this law may give notice as in the preceding sub-section.”

Mr. Muirhead suggested that a Butcher's License regarding which he would speak further on, would meet the expenses connected with the upkeep of this Bill.

Mr. Craig said that the expenses would be very little, and should come out of general revenue.

It was decided that the matter should be first submitted to the Live Stock Committee for their opinions.

Mr. Muirhead said that as a body representing the agriculture of Jamaica, the time had arrived for the Agricultural Society to find out what had brought about the tremendous reduction in the price of beef. The Government contracts used to be supplied at the rate of over 40s. per hundred pounds, now they were being supplied at 28s per hundred pounds. This had been largely brought about by the class of persons trading in stock for butchery purposes. Most of these had no interest in the hoof of an animal. These persons tendered for contracts and their tender was generally accepted because theirs was the lowest, and they tendered at prices lower than what it cost to produce the animal. These men were traders, and he was not aware of any class of men in trade who were exempted from paying a license. He brought the matter to the attention of the Board in 1904, and suggested that there should be licenses for butchers and traders in cattle. There were too many middle men here. They were the curse of everything in Jamaica, and they were wiping out the producers. There was a considerable exodus of Jamaica breeding stock to Cuba, and in a short time the pen-keepers would be told by these middle-men that they (the pen-keepers) could not supply all the cattle that were wanted, and would agitate to be allowed to import cattle free just as they did at the time when they were permitted by the Government to import Carthagena cattle to the extent of 50,000 head, bringing with them ticks and Texan fever, which had cost the country so much, and would continue to cost it a great amount. The supply of beef to the Government Institutions was put at 28s. per hundred pounds, which was considerably below the cost of production. It was all very well for them to say why should they go to the Government, why should not the penkeepers organise themselves to prevent this? Simply because they lived in a land where co operation seemed to be altogether impossible. A license on butchers would have this effect—that at present a large number of irresponsible persons acted as butchers and sold beef anywhere and in any state, whereas if a butcher had to pay a license, and beef could only be sold in a market place, if the meat was tainted with disease or any rascality was perpetrated, the license could be taken away and he could be prevented from carrying on such practices. A horse dealer paid a license of £5 and

he did not see why traders in cattle and butchers should be allowed to go about and do business without a license.

Mr. Fursdon stated that he would like to see the whole matter taken up by the Board. He had brought it up some time ago to the Board of Agriculture, but the opinion there was that if the pen-keepers would not co-operate to protect themselves nothing could be done. He thought the whole matter should be referred to the Live Stock Committee for them to go into the subject and report to the Board.

Mr. Craig suggested that Mr. Fursdon and Mr. Muirhead should themselves prepare a plain statement of what they wished the Board to consider and bring it up at the next meeting. This was agreed to.

Chemist's Fees. The Secretary read a letter from the Colonial Secretary's Office, stating that the fees received by the Island Chemist for analyses for the financial year 1904-05 amounted to £29 19s., and to the end of February of the current year £31 1s. 6d.

Canadian Exhibitions. The Secretary read the following letter from the Colonial Secretary's Office :—

2036-2070.

Colonial Secretary's Office, 7th March, 1906.

SIR,—I am directed to acknowledge the receipt of your letter No. 3208 of the 23rd ult. on the subject of the representation of Jamaica at the Canadian Exhibition to be held at Toronto and Halifax in the autumn of this year, and to say, in reply to the last paragraph, that the Governor regrets that he does not see his way at present to increase the grant made to the Society.

I have, etc., T. L. ROXBURGH, Asst. Col. Secty

The Secretary said that he had not asked for an increase of the grant to the Society, but in reply to the Colonial Secretary's letter asking the consideration of the Board as to the representation of Jamaica at these Exhibitions, he had written saying that the Society would be glad to get exhibits together if a small special grant could be made for the purpose. He also submitted a letter from the Secretary of the West India Committee, stating that in connection with Exhibitions, a proposal had occurred to him to advertise the West Indies by means of biograph or cinematograph views, that an expedition of expert photographers would visit the West Indies for the purpose of procuring a series of animated pictures of the principal views, customs, agricultural and fruit growing industry of the Island, that these could be done for about £500, and asking the feeling about this in Jamaica.

The Secretary was instructed to reply that the Board had no money for that purpose.

Diseased Coconut Trees. The Secretary submitted the opinions of the Staple and Minor Products Committee in the matter of Diseased Coconut Trees.

It was decided to inform the Colonial Secretary that the Board could not recommend legislation in this matter, as it would not be practicable to provide machinery for the carrying through of the Law, that they would rather trust to the effects of agricultural instruction. The Deputy Chairman stated that Mr. Cradwick, Travelling Instructor, would be in Lucea in May to carry through further experiments.

Coffee Industry. The Secretary said, that as instructed, he had got the opinions of the Agricultural Instructors and of some of the principal coffee merchants, as to what best could be done to help the coffee industry. He now submitted these.

(These will be published in next Journal)

After discussion, the Secretary was instructed to represent to the Government, that the Board was of the opinion that the Produce Protection Law should be amended, so that the 2s. license might be abolished, and that produce should only be purchased on the premises of the grower or properly constructed licensed places, or at the public markets.

The following items held over from last meeting were now submitted : —

Experimental Shipments.

Letters from Mr. B. C. Orgill, London, *re* experimental shipments of fruit. Mr. Orgill suggested that it was desirable that the Society should authorise the Secretary, so far as funds would allow, to make small experimental shipments of some of the various vegetables and fruits of the island other than the usual products exported, as the season for each occurred, and he would be glad to handle these shipments on the other side and place them directly with West-end Fruiteers, and report on results. The Secretary said that the Board had made successful experimental shipments to New York and the United Kingdom in the early days of the Society, when they had more money than at present.

It was decided to thank Mr. Orgill for his letter and offer, and state that the Board regretted that they had no funds to carry through his suggestions.

Jamaica Handbook. Mr. Fursdon wrote pointing out that although the Jamaica Handbook gave details with regard to estates growing staple products of the island, nothing was said about stock raising pens, and the editors of the Handbook should be asked to include these. The Secretary was instructed to write the Editors and see whether it would be practicable to include a list of stock-raising properties in the Handbook.

Instructors' Reports The Instructors' Reports for December and January were submitted.

Prize Holdings. The Secretary submitted the reports of the Judges in the Prize Holdings Competition for Clarendon, St. Catherine and Portland, and reported himself as follows :—

In presenting the results of the judging of the Prize Holdings Competition I beg to report, that although it was conducted under difficulties, there has been a great advance on previous Competitions in the marked interest now generally shown, in the eagerness of small cultivators to compete, in the disappointment expressed by many in letters to me at being disqualified, and in the sympathy and support of other classes of people. The difficulties I refer to are that especially on Portland and St. Catherine there were no instructors for a large part of the year, owing to Mr. W. J. Thompson going on leave of absence, and owing to Mr. Arnett having to fill his place at the Teachers Course at Hope in the month of January, where Mr. Cradwick was also engaged, January being the most important month, I think, in connection with this competition. As

Portland had no Instructor, the Board transferred Mr. Arnett there for three months, but owing to the interruption of the work in the month of January he had also to go back in February. The competition has been far more successful in Portland than I anticipated, which shows that Mr. Arnett has done his work well.

Mr. Hirst was transferred to St. Catherine for a month to work it up, and the competition there has also been more successful than I thought would be the case. Had there been an Instructor in St. Catherine working continuously, I am confident great good would have resulted, and there would have been a far greater number of competitors in the competition. From letters I have received I find that a great many heard of the competition, or became satisfied as to its purposes, too late for them to work up their holdings. It has been a rush to get the judging done in time for this meeting, as the Instructors only finished their work on Monday. Mr. Arnett and Mr. Hirst came to the office on Tuesday and Wednesday to make up their report. I have also taken the opportunity of their presence here to arrange about their work in next financial year.

I have carefully gone over the extra prizes recommended, and think the system adopted by the Instructors a very wise one in stating what their recommendations are especially for. The extra prizes are paid from the entry fees collected.

I have many requests to publish the whole statement of the judging in full, but as it would occupy so much space in the "Journal" I ask the leave of the Board to print it in a special inset which would not cost very much.

There were 99 entries in Clarendon and eight disqualified, 90 entries in Portland and eight disqualified, 56 in St. Catherine and four disqualified.

JNO. BARCLAY, SEC.

The awards were confirmed and sanction given for the printing of full details as asked by the Secretary.

The Secretary submitted a resolution from the Aberdeen Branch at Moore Town in Portland, asking if Rule 2 of the competition requiring that a house should be on the same piece of land as the cultivation be altered, as it debarred a large number of persons in Portland especially, who were anxious to compete. This Branch also asked that an Agricultural Instructor be appointed for Portland now that there would be £500 in the hands of the Government in lieu of the Elder Dempster Instructors.

The Board decided that they could not alter the rule referred to. The question of the Instructor was left for further consideration.

Letters. The following matters from the Colonial Secretary's Office were submitted :—

1.—Medals for Cotton Cultivation.—Offer by Sir Alfred Jones to present one Gold and two Silver Medals for the best cultivation of cotton in Jamaica, and asking the Board to suggest conditions. The Board decided to advise His Excellency that they thought it desirable that Sir Alfred Jones should state his own conditions.

2.—Introduction of Starlings or other foreign birds.

2145-1685.

Colonial Secretary's Office, 10th March, 1906.

SIR,—I am directed to state for the information of the Jamaica Agricultural Society that Sir Alfred Jones, writing in January last, stated that observing a want of bird life in Jamaica, he had already sent out six dozen English Starlings to the Island as insect destroyers, and had received letters stating that they were doing good work. Before sending out a further supply, however, Sir Alfred Jones desires to know whether this Government would consider their introduction desirable, in view of the fact of which he had been made aware, that when a few years ago it was proposed to introduce the Myna or

Indian Starling, enquiry made by the Government showed that many of the habits of the bird were such as would render their introduction undesirable.

2.—His Excellency has seen the letters of Mr. Taylor-Domville published in the "Journal" of the Society, which appear to show that Starlings, Magpies and other birds which he introduced are doing well, and that the two former at any rate were useful in destroying ticks. A copy of a recent letter from Mr. Domville to the Director of Public Gardens giving his experience in the matter is enclosed. The following copy of an extract from an American Magazine takes, however, the view from an experience of several countries that the introduction of birds into a country is usually of very doubtful utility, the bird often adopting new and undesirable habits when transported to a different clime, the Starling for instance, eating fruit in New Zealand.

His Excellency would be obliged if the Society would consider the question and favour him with their opinion as to the desirability of introducing the Starling or other birds into this Island.

I have, etc., T. LAWRENCE ROXBURGH, Asst. Col. Sec.

Moreland, Little London, February, 1906.

Hon. W. Fawcett.

SIR,—In reply to yours, I imported Starlings in 1903 and 1904. I turned them out at Fort George, in St. Mary. Before turning them out, I placed them in a wire enclosure, and fed them well on bread and milk (*fresh*) and cockroaches. I also gave them clean water to bathe in, I changed the water several times a day, as they will not bathe in dirty water; when they became strong and fit, I turned them out. By placing bread soaked in milk, in the garden, I kept fifteen or so, about the premises. They thrive well and *breed freely*, they are great tick eaters, and walk over cattle in search of ticks. They also forage for insects on the commons, as well as on the trees. Some Magpies turned out, did remarkably well, and *bred freely*; at first the stock were frightened when so large a bird flew on them, but after a bit they appeared to enjoy being ticked by the birds.

The Ting-ting is not to be compared to either the Magpie or Starling as a tick eater. Neither of these birds did any damage to fruits, eating green bananas being quite out of the question. I think the Magpie the best tick eating bird, he is easy to import, very few die on the voyage. C. Harris, Naturalist, Clayton Street, Newcastle-on-Tyne, supplies them at from 2s. 6d. to 4s each. He supplies Starlings at 3s. each. About 75 per cent. die on the way out. Cross, of Liverpool, charges from 1s. to 1s. 9d. each. I turned out 78 Starlings and six Magpies. Sir Alfred Jones has made me a present of 72 Starlings. Most of them died on board. I hear 10 only are alive, they are in Kingston. I have asked Mr. Haggart and Mr. Lanigan of Myrtle Bank, to forward them at once, for turning out here, as I leave the Island in about ten days for Cuba, where I expect to remain a few months.

A law should be passed to protect Starlings and Magpies. I shall be pleased to hear from you again.

I remain, yours truly, (Signed), R. J. TAYLOR-DOMVILLE.

P.S.—I turned out five Starlings here in 1904, people were surprised to see how they hunted insects and ticked cattle.

The Ox-eye Tit is a good insectivorous bird, it is a treat to see him search orange trees for insects, he does not, however eat ticks.

After discussion, it was resolved to recommend to the Government that no Starlings or other foreign birds should be permitted to be brought into the Island without special authority.

3.—Suggestion for Shows as contained in Prize List of Lagos Agricultural Show, recommending displays of agricultural implements. The Secretary stated that the hardware stores in Kingston usually had stands at some of the bigger Shows for the display of goods used in agriculture.

4.—Letter to His Excellency from Mr. F. G. Mathers, a visitor from the United States, containing suggestions for an export dis-

tribution fund for the purpose of improving the produce trade of the Island. It was agreed to publish the letter in the "Journal", as follows :—

Fort George, Stony Hill, 14th March, 1906.

His Excellency Sir James Alexander Swettenham, K.C.M.G.

SIR,—Possibly Your Excellency will allow a suggestion from a citizen of the U.S.A. (N.Y.) now temporarily in this beautiful island to the great enjoyment of gain in health of his family. Perhaps I should follow the precedent of that historic character of the first century, who was compelled to make a fool of himself, as a warrant for his utterances in saying that I am confident that our (U.S.) Secretary Root would assure you, that for over 30 years I have been a reputable Councillor-at-Law in our N Y Supreme Courts and Federal Courts, and in the Supreme Court of the U.S.A., in somewhat extended practice. Before my departure, I was somewhat aware of the close grip of the great corporations on the industry and products of the island—and properly so from the standpoint of business—but it was only after my arrival that I saw how hardly the situation bore on the producers—these poor sinners (I will not say poor devils) who go by in an unending procession, top-heavy with produce, unshod over these stony roads. As things are, these people are often unfairly treated and generally very inadequately compensated—a state of things seeming to me capable of remedy. It has been my lot to be many times in England and to be in Australia, Canada, Hong Kong, Java, etc., and it is perhaps my foible to always be interested in the institutions over me and in the people about me. My host, Mr. Warmington, a sturdy Englishman, has just received advice of sale of his coffee in London at 55s. Here he was offered 25s., 30s. at most. Mr. Mair, at the Reformatory, got double in London nett, of what he could have got for his coffee here. With fruits the great companies make the prices *for all*; and the producers get the smallest share—and the grading is so done as to put them at too great disadvantage. My proposition is the establishment of an "Export Distributing Fund." This would require legislation and Commissioners—and a detailed suitable organization—but nothing that is not familiar. Daily market quotations would be available, and every producer on actually turning in his approved produce could be paid 60 per cent. of its fair market value—the produce would go into a class and final returns, less cost both of commission, and of transactions, would be paid—say within 60 days. In this way the producers, through some commission, would be kept in close contact with distributing merchants and get approximately the full value. On our "Slate" belt in Vermont (U.S.A.) we all unite under one holding Company, turn over stock ever Saturday and get 60 per cent., the balance later. I must not weary you with details. Your Excellency will perceive that in this suggestion there is not the slightest element of socialism or of charity and there is absolutely no risk. The proposition is one of banking—strict business—and yet of public benefit. As the Empire and the colony collect taxes it would seem judicious as far as possible with absolute safety, to equip the people to pay them. I estimate that the products of the island should yield 25 per cent. at least more than they do without any additional cost to anyone. The effect on public prosperity is obvious—such action would have a most beneficent effect upon the people. Now no matter how patriotic and loyal the Government stands with a large share of the people as an institution, that only takes something from them—at most restrains them. Such a commission would be an object lesson that it was also a friend that was helping them. In a crown colony it would be easy and safe to inaugurate such. There is a better power of appointment and of regulation than with us.

I had at first planned to orally express these views, but concluded it would be less exacting of Your Excellency's time to submit them.

The Archbishop's family and the neighbours here have been kind to us, and we shall leave on the 24th on the s. "Atrato" with delightful reminiscences, and much to communicate of interest to the New York "Evening Post" of which my son is a leading editor.

But I beg to apologise for the length of this communication which has outgrown the limits intended.

I am, etc., (Sgd.) FRANK J. MATHER.

Pickled Mangoes and Orange Peel. The Secretary submitted the following letters, and said that he had referred them to people he thought might take the matter up, and he would publish them in the "Journal" for the information of the public :—

Nizam Depot, Kelvin Grove, London, S.E., 16th February, 1906.

SIR,—We have been advised by Messrs. Elders & Fyffes, Limited, of this city, to apply to you for information on the subject of mangoes. We are desirous of importing green mangoes pickled in brine. The method adopted in India is to gather the mangoes just before they begin to ripen, to thinly peel off the outer rind or skin and then to slice the firm fruit from off the inner seed or stone,—to tightly or closely pack these slices in hogshead, adding a sufficiency of strong brine every now and again as the hogshead is being filled up. The hogshead is then closely headed up.

Prepared in this way, the sliced mangoes will keep for a year or more and can always be utilised for pickling purposes. The sliced mangoes in each hogshead ought to weigh at least five cwt. We can command a good trade in this country if the fruit is of sound quality, not stringy, and free from a turpentine flavour and smell. Can you put us in communication with any enterprising growers or merchants who would be prepared to ship this at prices that would compete with the East Indian market. We as Indian merchants established in London for over 10 years, are in a position to create a large demand for mangoes preserved thus. Your early reply will oblige,

Yours faithfully, VEERA-AWAMY & Co.

This letter was addressed to Mr. Ackerley of Messrs. Elders and Fyffes, Limited, London, who had referred it to the Secretary for attention.

222, St. Vincent St., Glasgow, 8th February, 1906.

SIR,—We confirm ours of 19th ult., and have pleasure in enclosing letter received from Messrs. John Buchanan & Bros, Limited, which speaks for itself, but we may add, that if you should see your way to follow up their idea of introducing *Orange Peel*, we shall be very pleased to gather for you all the information we can about that line. Awaiting any further good news,

Yours faithfully, PETER MACLACHLAN & Co.

Stewart Street, Cowcaddens, Glasgow, 6th February, 1906.

To Messrs. Peter MacLachlan & Co., 222, St. Vincent Street.

DEAR SIR,—We have pleasure in stating that we made several grades of marmalade from the Jamaica oranges received from your firm, and that we found them suitable in every respect for our requirements. There is a slight difference in the flavour between the Jamaica and Seville fruit, but the difference is so slight that it would be imperceptible to the public taste. As your fruit would arrive somewhat earlier than the Spanish crop we think a trade could be built up for same. The skins also would be suitable for the manufacture of peel, and this would also be a new industry for Jamaica. We may mention that large quantities of peel in brine are received in this country from the Mediterranean ports. The oranges could be put up in cases containing 130lbs. nett fruit, which is the usual package in this market, and this would help to make freight cheaper. With thanks for sample cases received,

Yours faithfully, JOHN BUCHANAN & BROTHERS, LIMITED.

Exhibition of Fruit. The Secretary read letter from the Secretary of the West India Committee *re* sale of fruit sent to the exhibition of Colonial Fruit, and also his report on the second lot of exhibits shipped as follows.—

The West India Committee, 15, Seething Lane,
London, E.C., 16th February, 1906.

SIR,—I am in receipt of our letters 2709 of the 15th and 2979 of the 29th

ult., regarding the Horticultural Exhibition, and beg you to express to your Board my appreciation of the vote of thanks passed to me at your meeting on January 17th. As you know, I am only too glad to do what I can to help, and wish I were able to do more.

We have now succeeded in disposing of the whole of the fruit, which realised £4 17s., a cheque for which amount is enclosed herewith. I wish we could have got a better price, but you must rest assured that we did the best we could in the circumstances. To tell you the truth, it is not easy to dispose of such fruit unless one is in the "ring." It is most unfortunate that the fruit was late, as it would have made a splendid show at the Horticultural Exhibition, but we must hope to receive some in time on future occasions.

Yours obediently, ALGERNON E. ASPINALL, Secretary.

I beg to report that on the 1st March I shipped per S.S. "Port Royal" to the Exhibition of Colonial Fruit to be held at the Horticultural Hall, London, on the 22nd and 23rd March, 14 boxes grapefruit and 5 boxes oranges from Mr. E. W. Muirhead, Maandeville, 2 boxes of lemons from Mr. E. F. Coke, Mile Gully, 2 boxes of Seville oranges from Mr. H. Fray, Clarendon Park, and 2 crates of pineapples from Mr. G. L. Lucas, Constant Spring.

I had made arrangements for bananas and other fruits besides those mentioned, but none of the promised exhibits arrived.

I am much indebted to the Direct Line Agents for finding space for the exhibits and allowing the fruit to be shipped at the last moment.

JNO. BARCLAY, Sec.

Importation of Live Stock.

The Secretary submitted a minute with regard to live stock as follows:—

I beg to report that we have £65 in hand accrued from the sale of our live stock and set aside to continue importations in the way of live stock.

I find the greatest desire of the greatest number of members and branch members is for milch goats. The goats in the colony are not milkers but mutton goats, and with the exception of the Angora ram which was introduced by this Society, there has been no fresh blood brought in for years. Our stock could be largely improved by importation of rams from a milking breed of goats, not show specimens but from mixed breeds of good milkers. I visited a place in Essex and priced milch goats, and it would take £10 to bring one such goat out and keep it until it becomes of use. There is little risk in acclimatising in this importation, unlike cattle.

The next class of stock in demand, and which would be of great utility at the present time when there is effort being made to supersede our imports of milk and butter by home supplies, is milch cows. As the final expectation for all cattle stock whether cows or steers is the beef market, great discrimination should be used in attempting to improve the milking qualities of our cows by crossing. I am sure it would be appreciated if we imported a Shorthorn Bull, either a Lincoln Red or one from Yorkshire or Cumberland, where there are large framed beasts of good milking stock, carefully refraining from pedigree show stock, but choosing good, sound, farming stock. There are already Holstein and Jersey Bulls, and one Ayrshire in the Island, so such a Shorthorn Bull as I have mentioned, would keep the herds in Manchester and St. Ann on safe and profitable lines.

The next class of stock which might be imported is good boars, but this is hardly so necessary as the two previous, as thanks to the two importations by the Society in 1897 we have first-rate pig stock here. But with one exception, all we imported were bacon-breeds, long-bodied pigs, and these have run the old fashioned China Pig—which was suffering from want of fresh blood and which is most suitable for certain environment—almost out of existence. The nearest approach to the China Pig is the Essex, which is used as a grazer in the Southern States, and the one Essex Boar we imported had most useful influence in Manchester where it was stationed. We might import one Essex Boar if we had enough money.

As far as poultry is concerned, we discontinued our Society's importations

some years ago, private enterprise having taken up this branch, and there are enough good poultry still continuing to be imported to supply fresh blood.

I have estimated as follows :—

Goat.—Cost on spot	...	...	...	£5 0 0
Rail to Bristol and shipping expenses in England	...	...	...	1 10 0
Freight here	...	...	...	2 10 0
Duty	...	...	...	0 10 0
Veterinary Fee...	...	...	...	0 4 0
Cost of keep in Kingston for a month	...	...	...	0 16 0
				<hr/>
				£10 10 0
Shorthorn Bull.—Cost in England	...	£16 0 0	to	£20 0 0
Rail and Shipping Expenses	...	3 0 0	to	4 0 0
Freight to Jamaica	...	12 0 0		12 0 0
Attention on Board	...	0 10 0		0 10 0
Duty	...	2 0 0		2 0 0
Veterinary Fee	...	0 4 0		0 4 0
Expenses and Veterinary	}	2 0 0	to	3 0 0
care for one month				
Incidentals	...	1 0 0	to	2 0 0
				<hr/>
				£36 14 0
				<hr/>
				£43 14 0

JOHN BARCLAY, Sec.

It was resolved to circulate this report among the members of the Live Stock Committee for their opinion.

New Branch. Application for affiliation by the Mocho and Brixton Hill Agricultural Society was submitted and affiliation granted.

New Members. The following new members were elected :—
Messrs. W. H. Bemis, Baracca, Cuba.

The meeting adjourned till Thursday, 19th April, at 11.30 a.m.

COCONUTS.

It is a matter of satisfaction that so many coconuts have been planted since the hurricane of August 1903, and that in four or five years all going well, we shall be exporting very largely again. Indeed, our figures for export have already greatly improved from crops from old trees which were damaged, but are now recovered, and from young trees which escaped the storm. The plants set out since the hurricane are better planted, and are receiving better attention than their predecessors, so that they should bear larger crops and larger nuts.

We published an article in the "Journal" for January 1905, which opened up many new ideas, the principal one being to show the fallacy of the belief that coconuts will not flourish *commercially* back from the sea. We know from looking at Jamaica experience, that the chief essential of the coconut's life-time is air,—plenty of breeze circulating around it. Hence we find inland the coconuts flourishing on hill-tops, even if planted on poorer soil than the trees down in a deep narrow valley. The method of planting through banana plantations when the young plants are heavily shaded, is not good in

the long run, though economical at first, as it results in slow growth to bearing and the trees run up so tall, that in future they will be more exposed to damage by hurricanes. Plant coconuts therefore right through Jamaica so long as the location is not too high up, keeping the mind on these essentials—plenty of air, good fine soil, good seed nuts, selected from strong trees bearing large nuts, plants kept free from weeds.

The problem is how to fill up the intermediate space between the young trees, profitably. Cotton would do excellently, but then it must have an assured dry time when the crop comes in for picking, February and March—July and August,—while coconuts are mostly planted conveniently in districts possessing a good rainfall. If these spring months are dry, a good return may be made from cotton as a catch crop. Few other exportable products are available as catch crops, as these must not be high growing plants which would interfere with light and air. The ordinary local foodstuff crops are generally found most useful, and will not do harm if not grown too close to the trees, sweet potatoes, yams, cocoas, (tanas), corn and peas of all kinds.

We give below extracts adapted from an article from "The Tropical Agriculturist," written from Ceylon's experience :—"The old idea that the coconut tree would not thrive far from the influence of the sea breeze is exploded, as it grows well all over the low-country, where the soil and rainfall are suitable, and even in sheltered open valleys at an elevation of 2,000 feet. We must also give up the poetic fancy that the coconut tree stretches out towards the sea because it loves the briny breeze. The truth is, that the tree is a lover of light, and will bend in any direction to reach it ; and as there is no obstruction on the sea shore it naturally bends in that direction, and would do the same if the open space was inland. So sensitive it is to shade of the lightest that it instinctively bends away from it, and instances may be seen where the tree has grown almost horizontally till outside the influence of the shade, before it assumed its upward growth. For the success of a Coconut Plantation the first essential is the right kind of soil ; that secured all else is easy and success assured ; that missed leads to constant trouble, increased expense, and often to failure and loss. It is marvellous how men will go on planting lands utterly unfit, though they have constantly before their eyes the failures of others on like soils. If a census could be taken of the acreage of all bad lands planted, which never have paid and never can pay, it would be scarcely credited. When land unsuited for the successful growth of coconuts has unfortunately been purchased, and even gone so far as to be cleaned, the cheapest thing for the purchaser is to let it revert to jungle. The loss of the purchase money would be as nothing, compared to the constant drain should he decide to cultivate it.

Description of Lands The best soil is of course the alluvial deposit on the banks of rivers, where the land is periodically flooded for a few days ; fortunate indeed, is the possessor of such land. The next best is a deep sandy loam, and 75 per cent. of sand is not too much. On such land the trees grow rapidly and come into bearing early and respond readily to manuring. After this comes

a dark chocolate loam, either alone or mixed with quartz or large stones ; or a brown soil, also mixed with quartz and stones. These soils, though they may be rich, are, owing to their greater tenacity, not so good for the growth of coconuts, as the trees are slower in growth and take perhaps 10 to 12 years to come into good bearing. Avoid, as you would your worst enemy, hard clay, and clay-gravel soils, for they can never make successful or paying estates. Provided there is sufficient natural drainage, the flatter the land the better. Moderately steep land, if of good soil, is not to be despised, though the cost of all work will be slightly enhanced.

Rainfall.—From 60 to 80 inches a year, well distributed, is what suits the coconut tree best, though it will thrive and bear well with 50 inches on deep free soil, where the roots can travel easily in search of water. Less than 50 inches is perhaps hardly sufficient even on the most suitable soils. It has been said that a rainfall of 100 inches and over sends the tree to leaf and diminishes fruit production. I have not found this so. I know lands receiving up to 160 inches a year which compare well with those receiving only 80. If the soil is good, the extra rainfall does not seem to do harm. (In Jamaica the finest coconuts are grown to perfection where there is a very heavy rainfall, over 100 inches as well as where there is much less rain.)

Nurseries.—Where any large extent of land is to be planted it is not always possible to get nuts from selected trees for sowing in a nursery, though this might be done for raising plants for supplies. When selecting from a heap fully ripe nuts should be chosen, the water in which gives a metallic ring when shaken ; they should be of medium size, and as smooth and globular as they can be got, as such nuts have generally thin husks and are borne on a short fruit-stalk, and the trees are good bearers. The site for a nursery should be level and not far from water, as the nuts must be liberally watered during dry weather. Cut a trench 4 feet wide and 8 inches deep ; remove all the soil and put in the nuts touching each other, with the stalk end upwards ; put in soil and fill in all interstices, ramming in the soil with a stick ; water liberally and then put in more soil, leaving only two inches of the top of the nut exposed. I have found this method the most successful. A great deal has been written as to the best position in which to lay down nuts in a nursery. My observation is that it makes very little difference whether placed with the eye end upwards, on the side, or the eye end slightly elevated ; they seem to grow well in all positions, and I have read of a man sowing them with the eye downwards, with what object or with what success I never heard !

Lining.—The base lines should be laid down with a lining instrument as bad lining remains as long as the estate lasts, a witness to the carelessness of the Superintendent. All distances, from 24 by 24 feet to 30 by 30 feet apart have their advocates ; I think 26 by 26 feet apart a good distance ; the trees, except on the richest soils, have ample room to grow, and there is no unnecessary loss of space. I have not found that trees planted 30 by 30 feet apart bear any more nuts than those planted 26 by 26 feet ; and the loss of 16 trees an acre is a serious matter ; and this becomes very apparent when,

in manuring, there are only 48 trees per acre to expect extra crop from, instead of 64 trees. All planters with any knowledge of the habits of the coconut tree never plant nearer than 24 by 24 feet, but too many of the ignorant villagers plant so close that it is impossible for the trees to bear till they are about 30 years old, when they are able, through the pliability of the stems, to sway out in various directions in search of light. In the interest of the people a law should be passed forbidding anyone to plant coconut trees nearer than 24 by 24 feet apart; and I would even go further and prohibit their being planted under mangoes, bread-fruit, or any other trees. To me, one of the greatest recommendations of planting in squares is the extra space between every four trees which admits of more light and sun getting to the ground; a coconut tree can hardly have too much sun and light.

Holing.—Three feet cube should be the standard, a cubic yard every way.

Planting.—Where plants have been raised by laying the nuts on their sides, fill the hole with 18 inches of good soil and put the nut on the surface, pressing it into soil for about one inch, steadying the plant with a stick driven into the side of the hole and tying the stem to it. This will keep the eye or sprout free from contact with the soil, where it would be liable to the attacks of the white ant; when the plant is well rooted fill in to cover the nut. Where plants have been raised in a nursery, with the eye end up, fill the hole two thirds, and when planting bury the nut to within one inch of the surface of the soil in the hole. In both cases there will remain about a foot of the hole to be gradually filled in by weeding and wash. It is not uncommon to see plants put at the bottom of a three-foot hole, and where the soil is at all hard, the plants when 6 or 7 years old may have a poorly developed stem and the hole be still two feet deep! This only shows what a hardy plant the coconut is, and what unkind treatment it will survive. There are some soils so retentive of moisture, where the water percolates so slowly, that the least depression retains it for weeks, even with a deep drain within a few feet of it. In such a case the only way plants can be raised is by filling the holes right to the surface, and when putting in the plants, burying the nut and four inches of the stem and filling in the soil again to the surface, so that no water can possibly lodge; in this way they grow well. Drains should be cut where found necessary. I am doubtful if it is advisable to drain and plant in really swampy land; the cost is great to do it thoroughly, and the results doubtful, in my opinion.

Treatment of Plants for the first five years.—The practices are many, from permitting the bush to grow up for a few years and then cutting it down, to clean weeding the whole surface. The latter is rare except where grown with other crops. The accepted method is to allow the grass to grow, keeping down weeds and bush, and keeping a radius of from three to four feet round the plants clean-weeded. I think that if in the second year this radius were increased to six feet, it would bring on the plants much faster. I have in my mind's eye several patches up to ten acres, which were kept clean-weeded from the time of planting till the fifth year; now that the

trees are ten to fifteen years old they show a growth of quite five years over the others planted at the same time, but having only a radius of three to four feet kept clean round each plant, they also come into bearing four to five years before the others. I should mention that the ground was not exposed to the full force of the sun, as cocoa in one instance and coffee in others were grown for four years. If catch crops like cotton or cassava were grown with the coconuts for four years, necessitating the ground being kept clean, I am convinced it would pay well to do it.

Ploughing.—Where the soil is light and free, ploughing could be done with benefit in alternate years, after the trees have attained their eighth year ; where lands are hilly—and they are in the majority in some districts—this cannot be done. The only other way to loosen the soil is to, say once in three years, dig it over about six inches deep with forks, burying all grass and weeds in the process ; and where the soil is deficient in it, scattering broadcast about a ton of freshly-slaked lime per acre. If at the same time, the seeds of some nitrogen-collecting plants were sown, it would materially lessen the cost of the work, as so much nitrogen would be added to the soil when the plants were cut down and buried. When a small steam roller, with diggers attached, is placed upon the market it will be a boon to coconut planters.

Propping —This is an absolutely necessary work, from the time the tree begins to bear till the 15th or 20th year, according to the nature of the soil. Each bunch needing it is propped up with a forked stick finely pointed ; the forked position is inserted between the nuts till it catches the fruit-stalk. It is then slightly raised, so that the weight is partly lifted from the fruit-stalk, and the sharp point inserted into the stem of the tree, the weight of the bunch keeping it in position. Why it should be necessary to support the fruit of the coconut, in its early years, in this way, I am unable to say ; but it seems to indicate a weakness due perhaps to something lacking in our soils. Can any of our numerous agricultural chemists say if there is any chemical that can be added to our manures, capable of toughening the fruit-stalk ? Where wood is scarce propping is rather costly. (This hardly applies to Jamaica. We seldom require to prop.—Ed.)

Manuring.—Ceylon soils, as a rule, are poor, and to rest satisfied with the returns nature gives is, in the case of coconuts, bad policy. If we want heavy crops we must put into the soil the manures necessary to produce them. When shall I begin to manure ? So soon as you see that your plants need it. If there is a child or an animal suffering from inanition you do not say, Oh ! You are too young to be fed up, it may do you harm, and it would be wrong to accustom you to nourishing diet ; (this is practically the argument of those who say you should not manure young coconut trees), but you at once treat the child or animal in a rational way and give it the food suited to its condition. So should you do to your plants. Some want assistance earlier than others ; and when a person can afford to do it he should begin manuring before his trees show by scanty heads of leaves and reduced crops that they are lacking food. Manure half the estate each year, for I know of no manures—except

coarse bone dust—which will last unexhausted longer than two years, and on no account should the trees be allowed to fall into a poorer condition than that in which they were maintained by the manure. Without doubt cattle manure is the best, but much of that is not available, as pasture outside the estate is rarely to be had, and although the passing of herbage through the intestines of an animal makes it more readily available as food for plants, the grazing of cattle on an estate, and concentrating the droppings to one part, is after all, only “robbing Peter to pay Paul.” It adds nothing to the soil, but tends rather to exhaust it the sooner. Many persons with the means have not the courage to spend money on artificial manures, fearing that their money may be lost. This timidity arises from ignorance, for those who have used artificial manures know that, when the proper manures are used and judiciously applied, they always give remunerative returns. Again, ignorance makes many impatient and disheartened; they apply manure and expect to see results in crop within a year, forgetting, or not being aware, that it takes quite six months before artificial manure becomes to any extent available to the tree, and that it takes a year from the setting of a nut to its ripening, also that on poor lands the first application is almost all appropriated for the building up of the constitution of the tree, and that it is not till after the second application that results in crop are seen. Others object “if we begin to manure we must continue it”; that certainly you must, and if the money invested in manure yields 25 to 50 per cent. I fancy most persons would desire to continue it! Various nitrogen-collecting plants can grow, principally cowpeas. It is necessary to remind owners that manuring does not only increase crops; but prolongs the life of the trees for probably from 20 to 30 years?

Enemies of the Coconut Plant.—White Ants.—These are not very destructive except on old lands where no jungle has grown for many years; where they have decaying timber and roots to feed upon they rarely do much harm to plants. Many remedies have been proposed, but I have found the following effective:—Place half a quart of salt under the nut of the plant and keep it in its place by a stake driven into the ground, tying the stem of the plant to the stake; no earth should come in contact with the nut, and after the plant is thoroughly rooted earth may be gradually filled in; mild showery weather should be chosen for this. A very old and experienced hand recommends dipping each nut into a thick strong mixture of salt and cow dung; a pinch of corrosive sublimate added would be an improvement.

Cattle are most harmful to young plants, for if badly eaten down by them the plants must be replaced by others, as they will never thrive or grow into good trees. The only protection against cattle is a good fence, and to allow none into the estate till the plants are five years old.

Anyone desirous of going in for coconut cultivation would do well to carefully consider my remarks on soils, and also disabuse his mind of the very prevalent fallacy—mainly amongst Europeans, that coconut trees come into bearing in six years. This occurs only on the finest soils, and even then the bulk of the trees are not in

bearing till the 8th year. On inferior soils it takes 10, 15, and even 20 years for the trees to bear anything appreciable. The settler who plants his few dozen trees, and does not count the value of his labour, can afford to wait, but not the capitalist, who invests his money in the hope of quick returns. Under the most favourable conditions the cost of bringing an estate into bearing is considerable ; what then must it be when expenditure and compound interest go on accumulating for 15 years. The cost of producing the estate is then far more than it can ever fetch in the market.

(In Jamaica, coconuts even on poor soils, undoubtedly bear much sooner than in Ceylon. They often begin to bear at four years, are generally expected to bear in seven years, ten years is considered slow even at an elevation of 1,600 feet, and at 2,800 feet we have known them bear at 15 years. Of course, no one here would plant coconuts commercially at any elevation over a few hundred feet.—Ed.)

IMPROVEMENT OF COCONUT BY SEED SELECTION.

IN every branch of agriculture and horticulture in Britain, America and the leading countries of Europe, seed selection to improve crops is carried out ; and in coconut cultivation it should not be neglected. On certain well known and advanced coconut plantations seed selection we know is carefully carried out, and the results are well in evidence ; but there is much room for extension of the practice. We print a letter on the subject as follows :—

SIR,—I have been struck during my recent visit to Ceylon with the haphazard manner in which coconut cultivation appears to be carried out in the island, and absence of selection in regard to the quality of seed. I lay myself open to the charge of presumption in the remarks I am about to offer; and my ignorance of the practical details of the cultivation only allows me to make some very crude suggestions, in the hope that they may give rise to consideration on the part of those who may contemplate embarking on what has hitherto, I fear, not proved a very remunerative undertaking.

It will be admitted, I suppose, that as regards coconuts, the rule that obtains throughout the entire vegetable kingdom holds good ; the rule, viz : of natural selection, that is now making a revolution in the crops of America, by the improvements in the varieties of corn for instance ; effected by the selection in successive generations of flowers and of pollen from plants yielding the best and heaviest crops—the rule that has resulted in improvements in garden crops in civilised countries, and is of universal effect whenever it has been tried. Every one must have noticed that the produce of coconut trees varies very greatly. Under similar conditions of soil, manure, etc., trees growing side by side yield crops differing many fold in prolificness, due doubtless to accidental fertilization as the parent trees by pollen of good or bad stock ; and it is by the collection of pollen from the best trees that eventually permanent varieties of superior description will be raised, and the sustained attention of Agricultural Societies might well be directed to this point for generation of trees.

But without looking too far into the future, there can be no doubt that fruit produced by prolific parents must be calculated to produce in their turn a more abundant yield than fruit taken at haphazard ; some from trees bearing perhaps only $\frac{1}{2}$, $\frac{1}{3}$ or one-tenth of the produce of trees of superior kind. Let us assume that the cost of selected seed would be double, and let us suppose that 75 trees to go to the acre (the proportion and not the number being alone my test). Then, if 75 trees from selected trees were to bear on an average 50 nuts against an average

of half that number from unselected trees, the respective produce per acre would be 100 per cent. in excess in the first than in the second, and, I believe, this estimate is within the mark. Now the cost of bringing 100 acres into bearing is the same, whatever the quantity of the trees may be, and in either case the difference between the cost of good and bad seed would be so exceedingly small as to be quite inappreciable in the aggregate outlay. It seems to me, therefore, that if the profit on a hundred acres of coconuts—yielding, let us say, 25 nuts per tree per acre per annum—should represent say a return of 10 per cent. profit on the capital outlay, leaving 90 per cent. to cover cost of working the estate, and all expenses—then, as the additional profit from the increase of yield from selected nuts, which I have estimated at double would be equivalent to 100 per cent. additional produce, and as the additional expenditure would be comparatively inconsiderable, the excess of extra profit must be very great. Am I over-estimating it by putting it at 70 per cent. or 50 per cent.?—Correspondent 'Tropical Agriculturist.'

THE COFFEE INDUSTRY AND OUR LOCAL INSTRUCTORS.

WHEN the Society decided to appoint three Local Agricultural Instructors they had chiefly in view the rapid decline of our coffee industry. The small settlers were paying less and less attention to this product, they stopped cultivating their fields, and what was being picked was only what nature gave on the old trees without any cultivation. No new coffee was being planted out, and it seemed that in a few years our coffee industry would be practically gone, instead of the very large figure it used to make on our exports, and still then substantial. Instructors were therefore appointed in the central districts, where the people had depended much on coffee for a living, and would have, and could have, no other staple product so suitable to their districts to take its place. These instructors were located in their own districts with which they were familiar, and had special experience in the coffee industry, Mr. R. L. Young, Brown's Town, for St. Ann, Mr. J. T. Palache of Mandeville, for Manchester, and Mr. J. Hirst for Upper Trelawny and Upper Clarendon. While these instructors dealt with all agricultural matters coming under their notice, their greatest efforts were directed towards stemming the tide of deterioration and combating the panic that had set in with regard to the coffee industry. Anyone who knows the nature of the Jamaica settlers under like circumstances, can understand that this was not an easy task, and these instructors were not men being paid substantial salaries; they were only subsidized to give one or two days a week, from which they had to pay their own travelling expenses, and as will be seen the districts they had to cover were large. The work they have done has been reported every month, and although the results of this work are not apparent to the casual eye, it is known to those who understood the exact situation when they were appointed, and are familiar with all the circumstances that now exist. It will at once be admitted that there is no wide spread resumption of old fields of coffee, there is no great planting out of new fields to any extent (like the rush into the planting of bananas when prices for that fruit were high) but there are enough instances of old coffee pieces being cleaned out and pruned and even manured, there are sufficient instances of young coffee

being planted, to prove this—that there is no longer any panic in the coffee industry, that the people have steadied themselves. They understand the situation at home and abroad through the medium of these instructors and the Local Agricultural Societies. We ourselves have written in the “Journal,” and spoken at meetings as plainly as possible to make the situation clear to the small coffee grower,—he therefore understands that the low price for his coffee is simply through the extension of coffee planting in other countries with fresher soils, so that a larger quantity of coffee better prepared than most of ours is now on the market, often more than the market really wants and therefore only takes if it is pressed upon it, and sold at a low enough price, just on the same principle as the local markets for yam and sugar. If there are too many yams in the market on a particular Saturday, those who buy have a larger selection to choose from, can be more particular and make harder bargains. The people understanding this now, are just beginning to set to work to cultivate coffee again, and the more they do this, the more need they have for Instructors; for in the old times the few small people who grew coffee had mostly worked, or were still working, on the different coffee estates then spread over the country, but of which now only a very few are left, and were experienced. The younger men, however, growing up, have mostly never seen any coffee growing, except on the neglected plots around them. They have therefore imbibed the idea that coffee cultivation was no good to them; the Instructors have had to dispel this idea. The young men had preconceived ideas that what they saw around them was how coffee ought to be grown. The Instructors’ duties were to dispel this idea also, and by actual demonstration, show them how to lay out fields, how to raise nurseries, using specially selected seed, how to plant, how much shade to allow, how to prune and how to cure their coffee. But with such a formidable task how much can be expected from one or two days a week covering districts 50 miles long and almost as broad, and an agricultural population of many thousands, while they are receiving salaries ranging from £80 to £150 a year, which has to cover travelling expenses,—and travelling expenses in Jamaica are not light? Unfortunately, there are other circumstances which affect the coffee industry most adversely outside of prices lower than formerly, outside of adverse seasons, and that is the system of buying and selling now in vogue. There is every incentive held out to the small settler however well he may *grow* his coffee, to prepare it hastily and therefore badly. In the old times, and as is done yet in other lands, the settlers took his coffee to the market town on market day and sold it to the merchants there, making his own bargain. The license law for traders was such as made the trader a responsible individual, one who was intelligent and well-informed of the state of the markets abroad, one who knew that bad coffee would inevitably fetch a bad price, one who understood that the buyers in the great centres, London, New York, Liverpool, Havre and Hamburg (although they might never have seen a coffee tree growing) were the men who laid down the law about the quality of coffee and who fixed the price according to quality, and quantity available, and that they were not ignorant fools who could be gulled, swindled, cajoled into buying

any sort of stuff that might be sent to them. But now almost any man can be a buyer of coffee on payment of 2s. for a license, with, the result that the country swarms with irresponsible, ignorant, but often, most conceited buyers. If it goes on at the same rate the position will soon be reversed, and there will be more buyers than there are growers. There have been actually issued in the parish of Manchester 771 licenses at 2s. In the parish of St. Ann 750 licenses at 2s. are held. This most extraordinary state of affairs we venture to say does not exist in any other country growing coffee or anything. Consequently, here in the coffee season, you often meet men who are out buying coffee going almost from door to door canvassing, and they will buy even pints and quarts. There is here an inducement (which is taken advantage of) for children to steal small quantities of coffee and sell it to get a few pence to spend. This is actually done. The question ought not to be a matter of providing livings for any particular class, but solely a matter of the welfare of the Jamaica Coffee Industry, which so much affects the welfare of the island. We are making enquiry into the matter of these 2s. licenses, and getting the opinions of responsible men, whose views we are sure are solely given on the lines we have mentioned—the welfare of the Coffee Industry.

(This was written for last Journal. Since then, the Government, on the almost unanimous representation of the Legislative Council, have agreed to amend the Produce Protection Law)

MILK FEVER IN COWS.

WHEN cows live as nearly as possible a natural life as they do on pens here, moving about freely on the wide pastures, grazing at their pleasure, with their calves at their side suckling when they feel inclined, we find very few internal troubles exist. The more this natural state is departed from, the more subject to troubles the cows become. The necessities of civilization, however, more and more compel man to force cows to live more and more artificially. In the dairy industry so important to human beings, more and more milk is wanted. In Jamaica, we are using fresh milk both in ordinary consumption and for making butter to a larger extent every year. More milk is being taken from the cows and still more is wanted. Cows are being fed to produce milk, are being forced, and it is when this is done, that the trouble called "Milk Fever" occurs after the cow calves. It is not common yet, but it does occur.

It is one of the most disastrous and expensive complaints to which milch cattle are liable—this milk fever, or parturient apoplexy. One of the worst features of this complaint is that it is liable to attack just those cattle which we can least afford to lose, the cow which milk the best, and therefore return the most profit to their owner. Everything goes to show that milk fever is a nervous complaint, and as soon as this fact has been mastered and the old ideas completely discarded, more rational methods of treatment will be employed.

In large milkers, we invariably find beneath the abdomen a well-defined and protuberant vein, called the milk vein. This is one of the best signs of a good milker. In case of a heavy milker there is always a large circulation of pure blood in and around the udder.

Now it often happens that when a good milker has calved, her udder becomes so distended with milk that the attendant is convinced that unless the milk is drawn, inflammation will set in, with milk fever. So he tries to ease the cow by drawing off the milk. The immediate result, at least in very many cases, is the appearance of the very complaint he wished to avoid; the cow suddenly falls to the ground, and remains there moaning until she dies. Of course, in some cases it is possible that inflammation of the udder might be caused by extreme distension, but the danger of this is so infinitesimal compared to the harm arising from milking the cow, that it may be altogether set aside. If it is necessary to milk at all, only a few streams should be drawn from each teat, and the calf left to do the rest.

We are convinced, both from practical experience and from noting the efficacy of the modern cure method treatment, that milk fever is very commonly the result of emptying the udder, which appears to be over-distended, soon after calving. Remember what would happen in a state of nature. The calf would run with its dam, and would suck a small quantity from time to time, the udder meanwhile being generally distended, but never emptied. If, on the other hand, the udder is suddenly emptied, the blood which was engaged in its work in the udder, flows back upon the brain, and something very like apoplexy is the result, and the cow falls. Distension of the udder is Nature's own way, and in the majority of cases no harm will result therefrom. Therefore, it is the safest way never to touch the udder of a newly-calved cow for at least three days after calving, except to extract a few drops from each teat, the calf being allowed access as often as it pleases meanwhile.

INOCULATION FOR ANTHRAX.

WE have been in communication with penkeepers regarding the existence of contagious diseases of animals in Jamaica and the action taken in dealing with them. There are comparatively few serious diseases among our live stock, and the larger penkeepers are mostly wise enough to take immediate action when trouble does occur. The burning of carcasses is one of the things that is absolutely necessary to be done when animals die. It is usually done by the larger penkeepers, but we know that it is not always done and hardly ever done by those who only keep a few head of stock. Blackleg and Anthrax occur sporadically, and we find that it is becoming very usual to use the special Vaccines prepared for these diseases, and the testimony is nearly unanimous that they act as a preventive. The following report on the subject appeared in the "Agricultural News" of

Barbados, and contains useful hints. It is by J. Duncan Miller, the Government Veterinary Surgeon at Trinidad, and is addressed to the Imperial Commissioner of Agriculture :—

Anthrax was first observed by me in the slaughteries here in cattle coming from Venezuela in 1903.

This year—1905—twenty-four cases occurred in the colony in one district ; how it originated has not been traced. Since August 17 no cases have occurred in the district. The method of treatment was : a cordon of police stationed around the district and all traffic stopped, where cases occurred carcasses were burnt up, places disinfected with lime and carbolic acid, and all animals on infected estates inoculated with anthrax vaccine.

This method of treatment proved to be thoroughly satisfactory, as no spread of disease occurred and the outbreak was stamped out within a month.

The Government has made regulations making it compulsory to vaccinate all stock on an infected estate, and free vaccination has been recommended. All reported cases to be tested by microscopic examination.

OPERATION OF VACCINATION.—The method of procedure may be attended with bad results if employed by unskilled hands, as there are many accidents that may happen in the operation if great care is not exercised. Such as :—from using dirty syringes, not using disinfectants, injury to the animals from improper handling, etc

For my own part, I have vaccinated several thousands without one bad result. Frequently animals have been taken out of work, vaccinated, and sent back to work again.

I proceed as follows :—

(a.) Horses and mules are secured with a twitch, cattle are tied by the head to a post and two men hold the tail to the opposite side from the operator. Smaller animals are easily secured.

(b.) The place to vaccinate is either in the subcutaneous tissue of the neck or behind the shoulder. The first vaccine is generally used on the left side and the second vaccine on the right, although I have vaccinated a few on the same side with both vaccines without any bad result. Smaller animals are vaccinated on the inside of the thighs.

(c.) I wash an area of 12 inches of the skin where the animal is to be vaccinated with one part of creolin to 1,000 parts of water. Have syringe thoroughly disinfected with above solution, and finally cleanse with boiled water before using.

Five to 10 minims of first vaccine are injected hypodermically, and from ten to fourteen days thereafter 5 minims of second vaccine are injected.

Considerable dexterity is necessary in using the syringe otherwise the needle may get broken, blunted, or considerably more vaccine sucked from the syringe, in case the operator is not quick in withdrawing the syringe after the necessary dose has been injected.

The vaccine I prefer is that made at the Liverpool School of Medicine and obtained from Messrs. Evans, Sons, Lescher & Webb, Limited, Liverpool and London.

The first cost is 6s. 6d. per double tubes of twenty-four doses ; syringes are also supplied at 6s. 3d.

I shall be glad to let you have any further assistance you may desire on the subject.

ESSEX PIGS.

I have no hesitation in saying that of the Society's boars (Essex, Berkshire, Poland-China) made use of by me, I secured by far the best results from the Essex boar, one of the very first imported by the Society. The progeny of this boar from ordinary Jamaica sows were hardy, splendid grazers, and stood exposure to the sun well, and I found matured early and had a special aptitude to fatten

and thrive even on the poorest of feed. The pigs were so liked, that one gentleman to whom I sold a pair, said that he never owned pigs that gave him so little trouble, and did so well, and inquired of me where I got the breed from ; and a relative to whom I gave one of the boars was so impressed with its good qualities, that he refused to part with it, although a very tempting offer was made for its purchase by another breeder. What struck me most was the hardiness and early maturing quality which this boar stamped upon his progeny.

The boar I regret to say, did not live long, or I am sure his services would have been in very great demand, for a better breed of pigs for crossing on our stock has never been introduced in Jamaica.

W. H. HALL.

LARGE SEED vs. SMALL SEED.

THE Minister of Agriculture in the United Kingdom is about to decide whether a seed control station shall be established or not. If we employ small cattle we expect to breed small cattle ; if we employ a small breed of sheep or a small breed of pigs, we never for one moment expect to produce progeny of large size. It may be at once admitted that in the case of live stock fed entirely upon the produce of a farm something depends upon the character of the soil, the presence or absence of lime, for example, which is essential in the production of bone. But this condition may be recognised quite apart from that which is at issue. We contend, therefore that as in the case of live stock, so in the case of the plants of the farm. If we would obtain large produce, whether in corn, peas, coconuts or oranges, we must plant large seed, or how can your trees bear large fruit—large seed which is the produce of stout and vigorous plants.

If we admit that large seed should produce larger grain than small seed, we at once admit the whole facts of the case, for large grain, assuming it to be sound and properly filled, is heavier than small grain, seed for seed. Thus it is that we get more bushels to the acre and a greater weight. The thing is so evidently palpable that there ought not to be the least hesitation in accepting, not a doctrine which an experimenter attempts to propound, but statement of facts.

There is this further fact about large seed that, especially if it is selected from growing plants, the best which can be found in the field, these plants being marked, the seed being consequently saved with care, and then dressed, we cannot only depend upon the crops resulting from it being larger and heavier in quantity, but upon a general improvement of the crop, an improvement which usually follows where selection has taken place. If, then, plants are annually selected, and the seed they grow saved, a system is being followed which tends to improve from year to year, instead of to decrease, as is the case where inferior seed is sown and the best sold.—‘Farm, Field and Fireside,’ England.

PROPOSED CONTAGIOUS DISEASES ANIMALS LAW.

Draft of a Proposed Bill entitled a Law for the Prevention
of the Spread of Contagious Diseases among Animals.

(As Revised by a Special Committee)

BE it enacted by the Governor and Legislative Council of Jamaica
as follows :—

1.—This Law may be cited as “The Contagious Diseases
(Animals) Law 1906.”

2.—In this Law, unless the context otherwise requires, the
following terms have the meaning hereafter respectively assigned to
them, that is to say : the expression “animals” means cattle, sheep,
goats, and all other ruminating animals ; horses, mules, asses, swine
and dogs.

The expression disease means, cattle plague, (that is to say,
rinderpest, or the disease commonly called cattle-plague,) pleuro-
pneumonia, (that is to say contagious pleuro-pneumonia of cattle,
foot and mouth disease, sheep-pox, sheep-scab, swine-fever (that is
to say, the disease called or known as typhoid fever of swine, soldier,
purples, red disease, hog-cholera or swine-plague) farcy-glanders,
rabies, anthrax, (that is to say, the disease called or known as an-
thrax, splenic-fever, or splenic apoplexy of animals)

The expression “infected place” means any prescribed area
declared to be an infected place by order of the Governor and pub-
lished in the “Jamaica Gazette”

3.—(1). Every person having in his possession or under his
charge an animal affected with disease shall :

(a) keep that animal separate from animals not so affected,
and

(b) immediately give notice of the fact of the animal
being so affected to the nearest constable.

(2.) Any stockowner having good cause to believe that
stock depastured on lands contiguous to lands in his
own occupation are affected with any disease com-
prised in section 2 of this Law may give notice as in
preceding sub-section.

(3.) The constable to whom notice is given shall forth-
with give information thereof to the Inspector of Con-
stabulary of the Parish, or to the officer in charge of
the nearest Constabulary Station, who being satisfied
of the correctness of such information, shall thereupon
immediately report the fact of the existence of disease
to the Governor.

4.—The Governor acting on the said report, and on the advic
of a qualified Veterinary Surgeon as to the nature of the Diseas
and the area to be limited, shall have power by order published i

the "Jamaica Gazette" to declare that any place or area within which any of the diseases mentioned in this Law exists is an infected place within the meaning of this Law.

5.—From and after the passing of this Law no animal shall be imported or be removed into or out of an infected place except under rules therefor, which have been made by the Governor in Privy Council and published in the "Jamaica Gazette."

6.—Any person—

- (1) importing or landing or permitting any animal imported or landed to be removed from any wharf
- (2) moving, or assisting in moving or permitting to be moved into or out of an infected place any animal otherwise than in accordance with rules to be made as aforesaid, shall be liable to a penalty not exceeding Fifty Pounds to be recovered summarily before a Resident Magistrate, or two Justices of the Peace,

7.—Where an animal has died from any disease mentioned in this Law, the Governor shall make rules for

- (1) prohibiting or regulating the removal of carcases, skins, horns, hoofs, bones, fodder, litter, utensils, pens, hurdles, dung, or other things into, within or out of an infected place,
- (2) prescribing and regulating the destruction, burial disposal, or treatment of carcases, skins, horns, hoof, bones, fodder, litter, utensils, pens, hurdles, dung, or other things in an infected place.

8.—Any person contravening any of the provisions of this Law or of any rules framed under this authority for which no special penalty is fixed shall be liable to be fined a sum not exceeding Twenty Five Pounds. All fines and penalties inflicted under this Law or any rules or regulations made hereunder shall be recoverable summarily before a Resident Magistrate or two Justices of the Peace.

EXCESSIVE IRRIGATION.

THE following is from "Notes on Irrigation in South Africa," a paper read before the British Association while in Johannesburg, by C. D. H. Braine, A.M.I.C.E., Executive Engineer, Transvaal Irrigation Department.

"Unskilled irrigation means a very large percentage of water, and not only that, but many crops are impaired by an over-abundant supply. This fact should be thoroughly understood and carefully considered when attempting to fix the duty in a country where no effort has been made to ascertain from actual experience the amount of water required. "If irrigation water is used too frequently or too abundantly, the salutary habit of deep-rooting will be abandoned by the plant, and it will be dependent upon frequent rains or irrigation; and, also, owing to the small bulk of soil upon which it

can draw its nourishment, upon frequent and abundant fertilization.' Investigation made in California shows that the effect of a prolonged drought of over a year only penetrated about 4 feet into the soil, and at 10 feet down the ground was moist and plastic. In such soil deep-rooted perennial weeds were flourishing.

Fruit trees if deeply rooted require very little irrigation, in fact, water requires to be used intelligently. Water-logged land is one of the curses of unscientific irrigation, and over-irrigated or asphyxiated roots is a frequent cause of fruit dropping off. It is characteristic of the mode of land plants that they only flourish, as a rule, when their roots are evenly distributed throughout the soil that is relatively dry and only partially flooded with water. Paradoxical as it may seem, I know a case where the failure of a precarious water supply resulted in the death of all the trees in one part of a small orchard, and the preservation of those on the other part. The farmer had planted out a young orchard and was constantly irrigating with a quantity of water only sufficient to moisten a thin upper layer of soil. This brought all the young roots to the surface, and as the supply diminished the plants at the further end of the orchard were left to their fate. But the process was continued to a gradually narrowing area as long as any water lasted, and finally the supply failed. The roots of the plants that had been watered last were all in the surface soil, which became caked and heated, and the trees died. Those that had not been watered for some time all lived, for the young roots had time to penetrate below the effect of the drought, and were drawing moisture and nourishment, in a natural way, from the deep sub-soil. Effective cultivation is often very little practised, but nothing is of greater value to the irrigation farmer, as it prevents evaporation from the soil and reduces to a minimum the amount of water required. In fact, thorough cultivation is more necessary in arid than in humid climates.

Tracts of country in India are now flourishing that about 1852 were declared to be on the verge of ruin on account of over-irrigation. Such evils can often be cured by the proper care and use of water. Effective cultivation will very largely decrease the amount of water required, and produce a healthier plant-growth.

At one time in California, when water was of less value than now, most extravagant waste took place, the result being in many cases ruination to the soil. The present tendency is less water and more cultivation, the result being better crops and a corresponding saving of water.

ENSILAGE.

ALTHOUGH the making of Ensilage has been fully demonstrated to be practicable, and has been found a most important factor in the economy of stock-raising elsewhere, it has not been adopted here

yet. It has been tried by a few, is still being tried, and we hope the present tests will be successful, and that we shall be able to present an account of how the silo has been built, what it has been built with, and how the cows took to the silage and the effects. Now that the milking business is becoming so important, and the butter making industry is being carried on, those who keep milch cows can no longer trust to ordinary pastures and to luck in keeping up the supply of milk. Whether we get droughts or not,—and with the exception of this year it is quite usual to have much dry weather during February and March,—green feeding is always scanty in the cool weather, because there is “little spring in the grass.” The Guinea Grass that comes into Kingston is then harsh, and of very much reduced feeding value. It is only relished because the cows have little else in the way of green food. The result is a general falling off in the milk supply, just when milk is of most value, because in greatest demand. But there are times of the year when the grass is juicy and rich and in abundant supply; then is the time to stock a silo with herbage, keep it over until the month of December, and then use the stored supply until the middle of April. This can most easily be done by country stock-keepers, but is within the powers of the town dairymen, and it is in fact of more account to them than to the country people.

The following are the advantages of the use of Ensilage :—It will double the stock carrying capacity of a small pen or dairy. It keeps up a vigorous and healthy appearance in the stock through dry weather time. It enables men with a little land to keep a larger number of stock. Forty tons of fodder can be ensilaged off one acre. There are two kinds of Ensilage, viz :—Sweet and Sour. It must not be understood that the Ensilage termed sour is in any way offensive. It has usually a pale greenish yellow colour and a slight odour of vinegar. Sweet Ensilage on the other hand, is of a brownish colour and of sweet sugary odour. Strange though it may seem, the sour Ensilage has been found more suitable for animals kept for milking purposes, and sweet ensilage for fattening stock or for horses. When sour ensilage is wanted the crops may be left until they are full grown, but cut before any drying off is observed and carted to the silo immediately it is cut, and then pressed tightly down. The sooner the silo is filled and the weights supplied the better for sour Ensilage. When filled rapidly and immediately weighed down, the temperature will seldom exceed 80 degs. F., (the Silo should be in a shady place and not exposed to the sun), and little fermentation will ensue. When it is intended to produce sweet Ensilage the crop may also be cut when full grown, but it may be a day or two in the field to evaporate some of the moisture. The process of filling should go on slowly so that the temperature may rise between 125 to 150 degs. F. Should the temperature not be sufficient, either the fodder has been too wet or the filling, and consequent compression has been going on too rapidly. When a sufficient temperature has been obtained it should be immediately cooled down to 90 degs., by applying pressure, or the Ensilage will quickly spoil.

Testing the temperature of the Silo is a very simple matter. Procure a 12 feet length of a common gas or water pipe, 1 inch in diameter and have welded to it a steel point. Drive this into the Ensilage mass, and by means of a glass thermometer and a piece of string, the temperature can be tested to various depths. The filling of the Silo should be carried on in such a manner that the layer of fodder should be always horizontal. The filling having been completed the covering up can take place. Planks can be used to put across the short way of the Silo when it is not a round Silo. At one time it was thought necessary to have the cover as close and airtight as possible, but this has been proved erroneous. The object is to facilitate the escape of the air by compression and towards that end it is better to place planks about quarter of an inch apart and half an inch shorter at each end, so that there will be no danger of its sticking against the walls. It is not likely that solid concrete Silos will appeal to us here, such would be too expensive. Small Silos cannot be made so effective as large ones, nor can the fodder be packed so well against rough surfaces as against walls that are smooth, while deep earthen-ware Silos, *i.e.*, holes dug in the ground, are more likely to popularise the system here than expensive buildings, and probably would suit our hot temperature pretty well, yet there is more waste of fodder with small Silos and a rough surface than large Silos with smooth walls. On the whole, therefore, wooden Silos would be the best for us. Ensilage has been preserved in good order by simply making stacks, and this method has been practised in the United Kingdom and some of the Southern States of America. We have had experience of them. It is the cheapest way of making ensilage, but in dry districts here, just where ensilage is most wanted, dry winds and heat may be likely to spoil a considerable quantity of fodder along the outside of the stack. In fact, do what you will there will always be a loss in the stack method; still where there is abundance of grass and other herbage, and anybody wishes to experiment first, the stack method may be tried. Ensilage will keep in the stack indefinitely, but there will usually be a loss of one or two feet of it on the outside. The broader it is, will therefore be the better. To press down ensilage a pressure of 100 to 150lb. to the square foot is wanted. Any kinds of weight will pass muster for a trial. Anybody who wishes to make ensilage therefore need not hesitate. Either by the stack method or where it is very hot and dry sink a hole in the ground,—by good is meant not crumbly such as gravel, but even with gravel the sides could be boarded,—put in your green stuff, lay boards on the top and cover the whole with two feet of earth; it will afterwards come out green and sweet. Any vegetation that stock will eat will make good ensilage, and a good many of the coarser stuffs like whole cane-tops and cane leaves, will be much improved by the operation. It is said that ensilage is more digestible than the ordinary green feed, and we truly believe it is. It is calculated that 2lb. good ensilage has a feeding value for cows equal to 2lb. of good Timothy Hay. It should

be remembered, however, that this equal value is not for working stock, like horses. The easiest fodder for us to stock a Silo would be Guinea Grass, Para Grass, but a man who really wishes to push on his stock and get the best results, would grow an acre of Guinea Corn or Great Corn, and when it was six weeks planted, plant Cow Peas or Velvet Beans between the rows : at the fourth to the fifth month there would be a great mass of vegetation to cut, and of double the value of Guinea Grass. This is meant more for town dairies, as the Silo in the country can be filled much more cheaply, by gathering besides grass the leaves of Breadnut, Bas-Cedar, Ramoon, even Cane Tops, and mixing them all up. This would make a very palatable mixture. The finest crop of all for a Silo is Lucerne or Alfalfa, and although this has not been proved a permanent crop here yet, it grows easily enough, and might pay to grow to cut for the Silo for green, but whether or not, the combination of corn stalks and Cow Peas, which are certain growers, is a very valuable one.

POULTRY NOTES.

MORTALITY IN YOUNG POULTRY.—From the many letters and personal complaints we receive, there seems to be more than the usual deaths among young turkeys, ducklings and chickens this year, but especially to the former.

With young turkeys, there is mortality where the owners apparently follow out good rules in feeding and attention, so that we cannot find the fault there, but in nearly all cases we are able to put down over-crowding and want of fresh air in putting the turkeys up at night, and also keeping them on soiled ground, as the causes. Turkeys would be much better left to themselves with their mother, to go about and sleep where they please if it were not for rats. The essentials with all young poultry are here given. Variation in diet, no whole corn until they are three months old, a good run on ground that is not soiled with other poultry, and where they are confined, either they must have a change from one run to another, or else the earth must be turned over; plenty of grit, usually here there is a sufficiency of sharp gravel for them to pick up, but on grass runs there is often none, and then it must be supplied from some crumbly rock or from a gully, at least one bushel per week for a dozen hens as not much of the gravel is small enough and sharp enough to be of use. Water must be provided and changed at least twice a day and kept in a cool place; young birds must not be shut up in a close barrel or coop at night, they must have air and the coop must be perfectly clean. Shutting up close at nights and sitting in their own filth induces yaws to which turkeys are particularly liable.

With ducklings, the chief cause of mortality is the unvaried diet of cornmeal and water, they too often get exposed to the sun too much, and being allowed to swim about in water, which is particularly

fatal to them in the afternoon when they go to bed wet and get chilled ; on grass runs there is likely to be a lack of sharp gravel for them to eat, and they must be provided with this in the same way as turkeys and poultry, though not to the same extent. Varied food must be provided for ducklings more than for chickens, but it is not essential the food should be so dry, on the contrary, food for ducklings should be soft, and no hard grains should be fed. The cause of death among young chickens is very much the same as with young turkeys. They must have variety of food, and they must have shade, they must have grit, they must have grass, they must have clean ground, they must not be crowded at night in a close coop. For yaws, the safest remedy is Tincture of Iodine, touched on the sores with a camel hair brush, or even a feather. Carbolated Vaseline, Butter of Antimony, and other burning stuffs are effective, but dangerous in all but very skilled hands, while Tincture of Iodine, though a little slower, is absolutely safe. We often see young chickens being fed whole corn along with the hens just as soon as they are able to swallow it. The inevitable result is indigestion, and where they are active creatures and do not die, yet their growth is very much retarded. The best food for chickens at first is coarse oatmeal,—nothing can beat this. The next best is the ordinary brown rice (make certain not to get the polished white rice which is not half so nutritious). We often notice mistakes being made in the chickens being allowed to eat as much as their crops will hold with the mistaken idea of pushing them on. Every housewife knows how rice swells in water to six times its own bulk. The result with the chickens, is, that when they drink water with a crop full of rice, there are sudden deaths. No chickens should be stuffed full at one time, they should be fed little by little, at first five times a day, then in two weeks four times a day, and after a month, three times a day where they have a run and can pick up trifles. The next best food to the oatmeal and rice is cornmeal made into a pudding, *i.e.*, it should not be in paste or pap, but it should be crumbly. There is an art in making it just the right consistency, and baking it improves it. After a week of oatmeal and a little rice, the cornmeal can be used. Then in three weeks, ground corn may be used with the rice, and the oatmeal, which is expensive, dispensed with. This diet can be varied with crumbs from the table and duck ants. In the country, duck ants are a valuable and economical food and make up for the lack of any meat scraps. In confined places where duck ants cannot be had and meat scraps are scarce, then the ground must be dug over for worms, and many insects and grubs may be induced to appear, by laying planks or large stones along the walls or fences and after a week or so turning them over. Another way is to bury a marrow bone and, in a week it can be dug up with plenty of nice fat maggots about it which make good feeding for chickens.

If Americans cannot grow rubber in the Philippines, will it be an admission that they are less capable than their British cousins in developing the possibilities of their tropical possession?—"India Rubber World."

AN IMPORTANT PRELIMINARY TO SUMMER.

Nothing prevents an animal from putting on flesh more than to be covered with lice or ticks or infected with mange, which sets back its improvements many weeks, but which may be readily avoided by exercise of proper attention.

It is customary in England and Australia to dip twice a year, for sanitary reasons—to keep the stock healthy, if for no other purpose—and this would be a very good method to adopt in Jamaica as well, for although we have no real winter, yet all stock-owners—especially those out of the plains—know how difficult it is to keep stock in condition between October and April. Then the grass is poor and ticks and other pests are most prevalent.

Kreso Dip kills lice, ticks, fleas, mites, etc., whether used as a dip or applied by hand-dressing. It cleanses and disinfects the hide, smooths and glosses the hair, and is one of the best preventives of contagious diseases, such as hog-cholera, contagious abortion, etc. It does not burn, irritate or blister, as do carbolic acid, kerosene, etc., which are sometimes used. It is not poisonous or sickening, as are some other dips. It is easily prepared for use, being simply mixed with water. If dipping is not convenient, the preparation may be mixed according to the directions given in the circulars and applied by means of a brush, an old broom, a coarse cloth or similar device, scrubbing it thoroughly into the skin. At the same time the stalls, stables, sleeping quarters, etc., should be treated with the solution in order to destroy any parasites that may be lodged there. The poultry house is another place where Kreso Dip is of great value in killing lice and mites, disinfecting and purifying.

Directions for use are given in the company's circulars and may be depended upon. Write the manufacturers, Parke, Davis and Co., for printed matter descriptive of Kreso Dip, stating whether you want booklets on horses, cattle, sheep, swine, dogs, or poultry. They are sent free to readers of the "Agricultural Journal," upon application to the company, at its main offices, Detroit, Mich.

C O F F E E.

In a report to us dated 3rd December, 1904, Mr. Hirst, Traveling Instructor, made the following pertinent remarks on the Coffee Industry : —“I am glad to find that as I go about that there are a few men who have not lost faith in our old staple products. There are men who still firmly believe in coffee and are content to stick to it and care it ; and usually they are not by any means the worst off men, in spite of their stubbornness. We hear lots of talk of sugar having been the mainstay of the Island and that it must still remain so, but it seems to be entirely forgotten that coffee was equally with sugar, the old mainstay, and both will continue to bear the greatest influence on the Island's prosperity.

Coffee is going out of cultivation with the greatest rapidity ; and when sugar is gone and coffee is gone, —(since then sugar has

taken a new lease of life most fortunately and is not likely to go, the Society's efforts we think averted the "going" of coffee)—we shall have other and newer products, perhaps less suitable to our conditions, but shall we be in any better position than we are now?

We want higher prices. Yes, but more than that, we want larger crops. Do they come up to standard? I think not.

Is it that prices are unremunerative, or is it that we do not yet realize altered conditions?

And under our altered conditions will we do any better with our new products, unless we treat them far more favourably than we do our coffee and cane.

We treat our coffee as our pimento and logwood, that is we gather the crop.

It does not pay to cultivate and manure coffee! Does it not pay to cultivate and manure cane?

I am glad to see what I consider the resuscitation of an old industry, cocoa; but I am wondering what will be the result when we come to treat it in the same way as our coffee.

To sum up.—Coffee will not pay on worn-out, impoverished land, neither will cocoa nor anything else.

When we should blame ourselves or the land, we blame the price of coffee and try something else, never realizing that the result will likely be the same.

J. HIRST.

STOCK NOTES.

GOOD SHORTHORNS.—Notwithstanding the extreme demand experienced for good Shorthorns in Great Britain last year, there is every reason to believe that the present year will bring quite as great and continuous inquiries, and it seems by the turn things are taking abroad, that there is every probability of the Shorthorn being the chief centre of attraction for a long time to come. In the western continent, both north and south, the great ranching districts are rapidly being divided up into farmsteads with holdings of various extent, and there is every reason to anticipate that just as the Shorthorn outnumbers all other breeds in England and Ireland, so it will be in America. Villages in that country are, it may be said, almost daily growing into towns, and both villages and towns require a good supply of milk, and must have it; and what breed can do this better than the people's cow, as the Shorthorn may be termed?

MILKING BREEDS.—The second string to the bow is also very important in these newly divided-up holdings—namely, the ability to make beef as well as milk; on this account the calves of this breed surpass those of any other of our milking breeds by a long, long way; and whether retained upon the farm or sold to the occupiers of large farms where more feeders are required, the young Shorthorn becomes a very valuable asset. Having regard to these points, as well as to the increasing home demand, the Shorthorn appears to be a very safe trump card for a very long time to come. It is quite

possible, as noted last week, that the boom will cause a great number of inferior bulls to be brought to market, and by this means average prices may be lowered.

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RESULT OF SIZE—In almost all cases the phenomenally good female is the result of the size more than of the dam's breeding and perfection. The old saying, "that the bull is half the herd" must be taken to refer entirely to the fact of his siring all the calves from the cows and heifers with which he is mated, so that they are to all intents and purposes half his blood, but when it comes to the effects of this mating, the bull will be found to exercise a far more potent effect upon the offspring than the average of the females: therefore the sire may be counted as considerably more than half the herd. Good pre-potent sires are not retained nearly as long as they ought to be in most cases. Like, as it is said in the human race, so it is in the bovine, "always wise to stand by a tried friend"

COMMENTS.

RAT VIRUS.—The first instructions issued with this Virus were difficult to understand, judging by the many enquiries we had, and we ourselves misread them, although fortunately how we used it did not affect the results which were very apparent. However, the instructions accompanying each tube have been simplified and are now clear.

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ENSILAGE.—There is an article in this number giving general particulars about Silos and Silage. In the next "Journal" there will be an article by Mr. Lionel P. Kerr, Barossa, Mandeville, giving an account of how he built his Silo at Barossa, and how it was filled, and how it all turned out. There will also be other useful matter on Ensilage.

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PRIZE HOLDINGS.—Full reports from the Instructors giving their opinions and experiences, also full details of the results of the judging, are published in a special inset. The Instructors' reports are most interesting, and there are many points which should receive more than passing consideration. The great amount of correspondence that has arisen with competitors, makes it necessary for us to explain, that the special prizes were not necessarily awarded to those having the greatest number of points, but to those having some specially praiseworthy item on their holding. For instance, a man might be a coffee planter and that alone and he might have no room to grow catch crops, no room for pastures and keep no stock, and therefore might not have a high total in points, but still everything in connection with his coffee might be most commendable. He might therefore be awarded a special prize for that. Besides, the prizes which have been paid by cheque, the winners will receive handsome certificates signed by His Excellency the Governor as President of the Society, the Director of Public Gardens as Deputy Chairman, by myself as Secretary and by the Judges.

ORANGES.—By the middle of this month, that is April I am referring to, blossoms of oranges and grapefruit should be set, and as so much depends on getting the fruit in early, which means before November at least, and preferably before October, we recommended in November last that in order to help this end, the fruit then unsold should be taken off the trees, that all dried up branches and useless twigs in the heart of the trees should be pruned off to let the air and warmth circulate through them, that all those growths, usually called water shoots—which spring from low down on the trunk of the trees should be cut off,—and that all grass and weeds should be cleaned from the necks of the trees so that the base of the trees should not be kept clammy and damp. If all these things have not been attended to, as they should have been, we urge again that they should be done now. Let the breeze circulate through the trees, and not only will this hasten the growing of the fruit, but it will make cleaner skinned fruit. When people have fine grapefruit trees, which usually bear in huge clusters, it will pay in results to nip out of these clusters where they are within reach, a few of the smaller fruit now when they are the size of marbles or a little larger. The other fruit will be enabled to grow quicker, become larger, and not being pressed against each other, there will be none of those unsightly marks which lower the value of the grapefruit in the markets. We have also recommended that when oranges were so obviously late that there was little hope of ever getting them in early, they should be left on the trees, and a nearly opposite mode of procedure allowed in order to encourage very late fruiting—the pruning and cleaning should always be done. There is no good market for our oranges between November and the middle of February, but usually very good prices set in in March again. For instance, here are this year's prices :—

ORANGES.—Notwithstanding that shipments kept up to a fair average so far as quantity is concerned for all large sound fruit, values continue to rise. As a matter of fact over 200,000 cases were landed last week as against about 133,000 for corresponding week last year, but as the bulk of the fruit is proving to be small and in a number of cases wasty, probably owing to the damage by the rough weather experienced in the south of Spain during the past few weeks, really good samples are scarce and realise high prices, up to 28s. being asked for best large 420 Denias. Valencias in 714s. are selling the most freely and for soundness are probably the best value now obtainable. Murcias in latest shipments are for the greater part small, but very fair prices are realised.

Shipments continue to show a good percentage of damaged and wasty fruit so far as Spanish oranges are concerned, probably accounted for by the continuance of rough windy weather in the growing districts. Sound and large samples consequently maintain their high value, and even small fruit sells well where dry and with a small percentage of waste. Denias form the largest bulk of latest consignments, but the Valencias are on the whole the most reliable. Murcia bloods are selling better, and for these prices are firm. Sours and bitters are finishing, and the season for preserving oranges may be reckoned as about finished.

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BANANAS.—It is instructive to visit one of the buying depots for bananas where the sellers are mostly small cultivators. All through the day and night long lines of carts and drays, donkeys

and mules arrive loaded with bananas, and carts holding up to 30, the drays up to 40, the donkeys carrying 4 and the mules 6, generally. What is peculiarly depressing to us is the tremendous amount of waste that occurs. The number of rejections shows clearly enough how much instruction is needed by the small cultivators not only in the growing of bananas, and in the timing of them for the season, but of the cutting of the right grades. Just at this time (end of March) when full three quarter fruit is wanted for the United States, we noticed a whole cart load rejected all for being too thin. The fruit wanted three weeks to fill. Another cart load had ten stems out of 25 rejected, another seven out of 30, and so on. None of these rejections were for bruises, all for being too thin fruit, and yet these cultivators have been cutting fruit every season for years. In many cases, the cause of thin fruit, no doubt, is greed—the same spirit that actuates men to offer unfit oranges, half-cured coffee and cocoa,—and so on,—but at least in an equal number of cases it is the want of knowledge, and here we find men coming 15 to 30 miles hauling fruit for which they get nothing, and over and above have had the wear and tear of their beasts and cart, and their time is lost, when by waiting two weeks their fruit would have been cheerfully bought. And at this particular time of the year, waiting can by no manner of means be a loss, because if the price alters at all it will be a rise. Then there is the matter of the banana trash which goes to waste. Some of the larger banana planters are taking back their trash from the depôts in their carts and waggons to spread on their plantations as a mulch. The sooner the same practice is impressed on the small cultivator the better it will be for the country. The trash is very light, the carts go back empty. If this trash is well rammed down on the carts they can carry a substantial quantity with hardly any drag on the mules.

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PRODUCE LICENSES.—In Manchester with a population of 55,462, and 5,348 acres under coffee, there were issued last year 1,247 licenses under the Produce Protection Law, that is, one licensee eligible to buy coffee for every five acres of coffee. In St. Ann with a population of 54,127 with 13,155 acres under coffee, there were issued 1,104 licenses under the Produce Protection Law, that is one licensee to every 1½ acres of coffee. Of course every license holder does not purchase coffee.

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PICKLED MANGOES -- Attention is called to page 139 of this "Journal," where there is a letter from a London firm, asking if this island could supply green mangoes pickled in brine, and the method of pickling is given. We have millions of mangoes between May and September suitable for the purpose, the first cost of which is a trifle, certainly not more than what the first cost would be in India, while our freight rates to London are very moderate. We ought to do a large trade in pickled mangoes as an article of commerce.

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VEGETABLES.—Last year there was quite a flurry about some vegetable seeds said to be supplied through this office not growing, or growing up some other thing than what was named on the packet.

We are confident that why they did not grow was the fault of the respective growers, and if seeds planted really came up something else than what was intended, such seed did not come through us. In the matter of cabbage growing up something else, it was to us significant that it was the summer crop in a lowland climate, and all one district; that there were no complaints from any of the mountain districts where exactly the same seeds were supplied. There has been something like six times the quantity of vegetable seeds supplied this year over last year, and all that came through us was got from the same firms. We have this season investigated a few complaints made of seeds not growing, and always found the prospective growers had not the slightest knowledge of the rudiments of vegetable growing. On the other hand, there has been a great amount of success by small settlers who never grew vegetables before, but who used common sense. The Local Instructors who judged the Small Holdings in Portland, in their report, say that Isaac Williams, Maidstone, had wonderful results from seeds obtained from the Society. From two 3d. packets of cabbage seeds he was able to sell 1,200 young plants at 1s. per 100 and had remaining upwards of 1,000. They also say that in most cases the planting of vegetables was made too late to meet the tourist market. We have been constantly impressing on vegetable and potato growers every year, the fact, that they must order their seeds early, and plant them in the first two weeks of November at latest, to catch the market, and in August last advised intending growers to give us their orders at once.

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SEVILLE ORANGES.—Our late experiments in shipping Seville Oranges have had substantial results. There are probably more makers of marmalade in the city of Glasgow than in all the rest of the United Kingdom. Some of these firms have tried our oranges, and have reported, that if supplied at the same price, or even a trifle more than those from Spain (seeing that we could supply them earlier in the season) the oranges are suitable for their purpose. The important firm of Messrs. John Buchanan & Bros., Glasgow, has gone further. If reference is made to page 139 of this Journal, under the heading of Board of Management, it will be seen that this firm have reported that our Seville Oranges are *suitable in every respect* for their requirements, and further, that the peel of our orange is also suitable for their trade. A further result of our shipments is, that the Royal Mail Company, whose freight rates via New York were 3s. per box and 6s. per barrel, have on the representation of the Society, and to give this trade a chance, reduced their rates to 5s. per barrel, and 2s. 6d. per box. As these oranges will probably be shipped in a special make of box, if there was a prospect of a substantial trade, we think we could get a special rate quoted for the type of box used.

We have received the following report regarding a private consignment of Seville Oranges:—"The fruit suffered from close packing from which cause a good many were bad. The box in which 200 were packed had 56 bad, the box with 170 had only 18 bad. When repacked the larger box of 200 could take just 180 easily, so, making allowance for the curing of the fruit on the road, the packer

must have jammed them in with his fist. The good fruit was excellent, large in size, and has made most excellent clear marmalade. There ought to be a large sale for them if they were judiciously advertised, as they have from three to four months of the market before the usual marmalade oranges come in from Spain, and there is no doubt that those you sent me are much larger and finer oranges. They are, however, very full of seeds."

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TICKS.—Among the washes for ticks used by prominent pen-keepers as mentioned on page 80 of February "Journal," is the Ferris' Universal Disinfectant, advertised in this number of the "Journal." Mr. Lewis, Brumalia, Mandeville, has used it for 3 years persistently in the proportion of 3 to 10. The Hon. H. T. Ronaldson, Springfield, Milk River, has used Ferris' Disinfectant for the last 3 or 4 years with satisfactory results. This Disinfectant is quoted much cheaper in large quantities than buying per gallon.

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PRIZE HOLDINGS.—Mr. David Horne, Kellits, Crofts Hill, kindly offered an extra prize of £1 to any competitor in the Small Holdings Competition who won a prize in his district. Mr. John Taylor of Penman's Corner, Crofts Hill, won the 5th prize, and at a meeting of the local Branch Society, was presented with the special prize by Mr. Horne.

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PRIZE HOLDINGS.—In connection with the Prize Holdings Competition, we are still receiving many letters expressing disappointment that the rule requiring the dwelling house to be on the piece of land entered for Competition, cannot be amended. A new argument and a very strong one, is brought forward by a competitor in Portland, who has won a prize in the smallest class, but who has land conforming to all the other rules, which would make him eligible for the highest class. His case is the case of many in tropical countries, i.e., he has rich bottom land exactly typical for cultivation of bananas and cocoa, but as he expresses it, not what you would call a health resort, and he has a smaller piece of land near by on the hill, but with another man's land between, where his house is situated for the sake of health. It does seem hard, that to enable a man to qualify for this Competition, he is to be urged to build his house in an insalubrious spot. The best places for cultivation are often the worst places for human beings to live, but usually in Jamaica a hill top is close by suitable for a dwelling, but not for cultivation.

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BRANCH SOCIETIES—We are always glad to see the local societies give evidence of being in active existence. One of the real live societies is the Springfield Branch in St. James. From the Secretary's notes printed in this issue, it will be seen that they are discussing the matter of a Penny Bank; they have ordered a good breed of pigs advertised for sale in the current Journal; they have discussed the reports on the coffee industry submitted to the Board of Management at their last meeting, as published in the newspapers, and came to the conclusion, that the 2s. licenses should be abolished, and they have ordered one dozen Souvenirs of the Crystal Palace Exhibition from us at 6d. each. That is what we call good business, and we commend their activity to other Branches as an example.

BRANCH NOTES.

HAMPSTEAD.—A small Show, comprising 40 classes of agricultural products, will be held at Hampstead Pen, (kindly lent by H. J. Rudolf, Esq., J.P.), on Thursday, 26th April, 1906, when prizes amounting to £4, will be given for the best exhibits in each class. None but members of the Branch can compete for prizes. A band of music will be in attendance. The charges of admission will be, adults 6d., children 3d., with an extra charge of 6d. for each horse and buggy. The following gentlemen have kindly consented to act as judges: H. J. Rudolf, Esq., J.P., G. A. Hawken, Esq., J.P., O. L. M. Sanguinetti, Esq. It is expected that Messrs. W. Cradwick, and John Barclay, of the Agricultural Society, will also be present and act as judges. The lively interest being manifested among the members and others is an evidence of the success we hope to attain. For information write to, (Mrs.) E. SAM'L EXELL, Hon. Sec., Hampstead P.O.

ST. ANN.—The Council of this Branch Society held its Quarterly Meeting at Claremont on Wednesday 7th inst. There was very little business to transact, as the Society has decided not to hold the usual agricultural show at Thickets this year, but to give what help it can to the Show to be held at Minard in Brown's Town, on the understanding that next year the Brown's Town committee shall not hold their Show, but shall help with the one that it is expected will be held at Thickets. The members of the Council are willing to collect exhibits of minor products in the different districts and forward them to the Show at Minard, but it must be understood that the exhibits are of good quality and properly put up. The past season has been a hard one for the peasantry of St. Ann, owing to the drought lasting from early in June right up to the end of the year. The Pimento crop was very small. Hundreds of oranges dropped from the trees long before they were fit to cut, and those that reached maturity fetched only a small price on account of their size. Yams were burnt out in the ground, and but for the quantities of breadkind that was brought over the hills from Clarendon to Claremont market, there would have been a sad dearth of yams, cocoes, etc., in all the parish. People bought up donkey loads that were not even put out for sale in the market and carried them off to St. Ann's Bay and other markets to sell again. The only crop that did well was coffee; that gave a fair yield and sold for a fair price. It is as yet far too early to give the prospects of coming crops. This Society now only numbers 64 members, as many names have had to be taken off the list on account of the yearly subscription of 1s. not being paid up, Mr Barclay having impressed on the Hon. Secretary the necessity of only sending up in the annual list the names of those members who have sent in their subscriptions.—A. M. DOVER, Hon. Sec.

PORT MARIA.—A meeting of this Branch Society was held at the Port Maria Court House, on Saturday, 17th inst. The Hon. R. P. Simmonds, President of the Branch, in the chair. After the confirmation of the minutes of the meeting held on the 26th October, 1905, the Secretary read a letter from Mr. John Barclay, Secretary of the Parent Society, asking to be advised as to the date on which the financial year of the Branch commences, and requesting to be supplied with a revised list of members of the Branch, advising also that no names should appear on the list but those of members who have paid up. The Treasurer stated that the Branch being in a good financial condition, the members have never been pressed for their subscriptions, consequently very few members have paid up. After further remarks, it was agreed that all subscriptions in arrears to the 31st inst. be remitted, and that members be informed that as the Society's year begins on the 1st April, their subscriptions must be paid in by the end of the quarter commencing on that date, otherwise their names will be struck off the list, and the fact communicated to the Secretary of the Parent Society so that the supply of "Journals" to them may be stopped. The Treasurer stated that he

had not lodged the small balance which he had in hand from the last Show as the Diplomas which were awarded have not yet been got, the design not having been agreed on, consequently he could not say exactly what the cost would be. Besides this, there are some prize moneys which have not been called for. It was agreed that the Standing Committee should at once procure the Diplomas, and that the balance of the amount, including the prize moneys which have not been applied for, be thereafter lodged in the bank. With respect to the lectures which it was decided to ask Messrs Fawcett and Barclay to deliver, the President informed the meeting that he had spoken to Mr. Fawcett on the subject, and he had consented to come over for the purpose as soon as the present session of the Legislative Council is adjourned. Mr. W. Thomas Linton, late Secretary of Above Rocks Branch, who had removed from that district, was admitted a member of the Branch. The election of officers was next proceeded with. The Hon. R. P. Simmonds was re-elected President, Messrs. P. A. Bovell and J. Cecil Sharp, Vice-Presidents, and Mr. J. A. Benjamin, Treasurer, Mr. H. Jones Dakers was re-elected Secretary and Revds. John H. H. Graham, D. Henderson, and Messrs. E. J. Meikle, Horace Goffe, Thomas Robinson, Richard Williams, Edward Campbell, U. R. Sutherland, R. S. Rutty, J. Troupe Atkinson, W. G. Hamilton, Jas. Heslop, Wm Taylor, C. R. Tyson, J. M. Pringle, and A. Davidson Goffe, Members of the Standing Committee. Mr. W. Thomas Linton was elected Assistant Secretary. The question of holding the next Annual Show was discussed, and on motion of Mr. J. A. Benjamin, seconded by Mr. J. Cecil Sharp, it was unanimously agreed, that "The Annual Show of the Port Maria Branch of the Agricultural Society be held at Palmer's Park, Port Maria, on Thursday, 5th July, 1906." The President stated that the amount now at credit of the Branch is £187 9s. 9d plus 13s. 11d. for incidental expenses. It was further agreed that a Public Meeting be held at the Port Maria Court House on Thursday, 22nd inst., to make arrangements in connection with the Show.

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MOCHO AND BRIXTON HILL.—This Branch Society met for business in the St Paul's Schoolroom, Mocho, on Friday, the 9th March. The following members were present :—Rev. O. H. Baker, chairman, Messrs. C. M. Gunter, Treasurer and Assistant Secretary, J. A. Roden, Secretary, Alex. Lloyd, Bernard Francis, Joseph Brown, Matt. Brown, Robert Adams, John Smith, Saml. Gotshalk, Robt. Williams, Ernest Williams, T. T. Williams, Chas. Robinson, Thos. Anderson, Dan. Edwards and Mrs. Susan Gibson. There were also a few visitors present. The minutes of the meeting held on the 12th January were read and confirmed. Messrs. Peter Small, Joseph Marshall, Matthias Gale and William Small were elected members of the Society. The Treasurer reported on the finances of the Society. The report was accepted as correct. The Chairman thought that it was time the rules of the Society be in the hands of the members, and suggested that the Secretary find out the cost of printing 100 books of rules and report to the Society at its next meeting. The subject: How to improve the Coffee Industry was introduced by the Chairman. It was very warmly discussed. The members present agreed to improve on these points—manuring, pruning, and curing of the beans. It was felt that as the system of buying coffee in the island was so bad, the members should unite and sell their coffee in London markets. It was agreed upon to get two pairs pruning shares from the funds of the Society for the use of members, and to ask Mr. Cradwick to help the members to prune their coffee by giving practical lessons. Mr. C. M. Gunter presented a resolution, which has for its object the furthering of the interest of the Society by a Show of Horses, Mules and Donkeys, open to members only, to be held on Victoria Day, 24th May. After some discussion and with slight alterations it met with the hearty approval of all. The meeting then adjourned to the first Friday in April.—J. AUC. RHODEN, Sec.

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NEWMARKET.—A meeting of this Branch Society was held on 2nd March. There were present: G. E. Daly, Esq., presiding, Messrs. W. K. Sullivan, Henry Coke, Jas. Smith, P. Morrison, H. C. Gooden, G. Forde, G. Ogilvie, C. O'Connor, J. Lodenquia, John A. Monteith, and A. E. M. Shakespeare, Secretary. After the preliminary exercises, Mr. Rankine, dispenser, was elected a member of the Society. The report on the Poland China Boar belonging to the Society was read and adopted. This pig stands at Mr. William Porter, Greenvalley, Newmarket P.O., and the fee for service is 4s. Loan Bank.—Matters in connection

with the Loan Bank were discussed and we hope soon to report thorough success. Mr. W. K. Sullivan is the Treasurer. Notes.—The Society was invited by the Revd. Jno. Maxwell to visit his vanilla cultivation at Rockcliffe and see a practical demonstration in artificial fertilization. This the Society will do on the 23rd inst. The Society promised Messrs. John Haddon & Co., to emulate the Petersfield Branch and send produce to be handled by the firm. Various plans have been discussed by this Society to help and put the coffee cultivation up here on a proper footing, but up to now no real success has been achieved. His Excellency the Governor has now taken a personal interest in the matter, the Branch expects to ask the Parent Society to give what help it can. The New Savannah proprietor has rented some very good lands to the peasantry, and it gives one pleasure to see them plying their hoes, etc. I wish I could say "Fork," although the introduction of this valuable agricultural implement is only matter of a short time, as some from my advice, have asked me to help procure it. Weather.—Air cool and bracing—slight showers. Newmarket is a good spot for some enterprising individual to erect an hotel.—A. E. M. SHAKESPEAR, Sec.

ST. GEORGES.—The regular meeting of this Branch Society was held on Saturday, 10th March. The following members were present: Messrs T. C. Geddes, presiding, T. N. Wynter, Landford, Burgess, Welsh, Cohen, Cotterell, Sommerville, and W. J. Thompson, Sec. Mr. Winter was elected Hon. Assistant Secretary. The rules were distributed to the members present. Cash statement for month received. The most important matter which created a discussion, was the proposed Show to be held in August. All the members were in favour after a proposal was offered by the Secretary. It was agreed that as the President was unavoidably absent, to defer the definite arrangement until next meeting. It was pleasing to note from the verbal report of the caretaker of the Society's boar, the satisfaction it is giving and the patronage received. Let me ask through this medium, that the members of our Branch do their best to make known to others the existence of the boar, and the comparatively small charges for its services. The visit of Messrs. Arnett and Hirst has rekindled an interest in agriculture, and already the results are seen in the improvement of holdings. It is hoped that their report will serve as a stimulus to the small proprietors of the districts they have visited. These gentlemen had a farewell lecture at Tranquility on Saturday, 17th, and it was gratifying to note the appreciation expressed, and the remarks tendered to them for their services and help. We trust the Parent Society will see their way to make arrangements for periodical visits of these Instructors.—W. J. THOMPSON, Hon. Sec.

RIO MINHO.—The monthly meeting of this Branch Society was held at Park Hall, on 16th March, 1906, at 7 p.m. Plans were discussed for the better working of the Society. The idea of having a local show in August was discussed and heartily supported. At the next meeting Mr. Edward Robinson will read extracts from the "Journal" on Poultry Rearing. Mrs. Theo. McKay will prepare a paper on "The Tenant System of Jamaica," Mr. E. R. Bryan will read his paper, "The Benefit of an Agricultural Society." The date of next meeting, 6th April, at 7 p.m. We are having a sharp spell of dry weather.—U. THEO. MCKAY, Sec.

SHOWS TO BE HELD.

THE following Shows are arranged :—

St Ann, Brown's Town, 1st August.

Hanover, Lucea, 1st August.

Manchester, Kendal, — November.

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No. 5.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 19th April, 1906, at 11.30 a.m. Present:—Hon. W. Fawcett, Deputy-Chairman, presiding; the Honrs. Geo. McGrath, H. T. Ronaldson, and R. P. Simmonds; Messrs. John Cameron, D. Campbell, R. Craig, C. A. T. Fursdon, E. W. Muirhead, and the Secretary, John Barclay.

Mr. J. R. Williams wrote regretting that he could not be present.

A letter was read from the Hon. Geo. McGrath, acknowledging receipt of the Secretary's letter, notifying him that he had been elected a member of the Board, and accepting the position.

Freight Rates. The Secretary read letter from the Superintendent of the Royal Mail Company with reference to the previous correspondence on freight rates to the United Kingdom, stating that it had now been decided to meet shippers of oranges and reduce the through rates to Glasgow via New York to 2s. 6d. per box, Florida size, and 5s. per barrel.

Contagious Diseases Animals Law. The Secretary submitted the opinion of the Live Stock Committee with regard to the probable cost of administering the Contagious Diseases Animals Law if it were put in operation.

After discussion, it was resolved that the Secretary should write to the Colonial Secretary embodying the opinions of the Committee to this effect that if there is no disease in the island the cost will be nil, but in event of disease breaking out there will be money required for the following:—

(a.) A Veterinary Surgeon's report and travelling expenses in each case the Governor calls for his opinion. The report of the Inspector of Constabulary in the first instance should not cost anything if it is regarded as part of police duty.

(b.) The promulgation of Privy Council Orders or Regulations will entail the cost of printing and circulating, but until these orders are made and it is seen whether they provide for any of the expenses of stamping out disease, in cases where the owner of stock was unable to pay these, or in a case where no owner could be found, these expenses cannot be calculated. Presumably all fines under such a law will be available to assist in carrying it out.

(c.) If it is found after the passing of a Law that disease exists in a number of places the Governor will naturally be anxious to stamp it out quickly, and the services of a Veterinary Surgeon might be required for a short period, say

say six months, and arrangements with a qualified man might be made for two guineas per day and his actual travelling expenses.

2.—In regard to how the cost should be met,—as the suppression of disease is obviously in the interest of the entire community it is considered that the cost of the Law should fall on General Revenue. The sufferer from disease in the absence of any compensation for loss of stock could not be expected to pay more than the cost of burning or burying the animals, and the disinfection of his place.

3.—The Society is considering at present the matter of the imposition of a small traders license for traders in cattle, and if such a license were put in operation the proceeds might be applied to the cost of carrying out the proposed Contagious Diseases Animals Law.

Importation of Stock.

The opinion of the Live Stock Committee with regard to the importation of fresh stock with the money accrued from the sale of the

Society's Bulls was submitted

Mr. Muirhead supported the importation of a bull of the milking Shorthorn breed, or a Red Poll, which might be put up for auction after a month's acclimatization.

Mr. Fursdon was of opinion that the money set down for the purchase of the bull in England—£20—was not sufficient.

The Secretary said he had seen good young bulls in Carlisle market sold at £18 and £20, not show stock, but good farmers' stock, but since then the price of Shorthorns had been going up.

Mr. J. R. Williams wrote that he had always advocated the importation of goats, and the Secretary submitted a letter from Mr. Cradwick saying, that as private enterprise was importing bulls and nobody had ever imported goats, except the Society, he thought the introduction of milch goats would do most good in general.

Mr. Cameron proposed that the first stock to be imported should be milch goats as far as the money would go, and Mr. Campbell seconded.

Mr. Fawcett said that Sir Daniel Morris, to whom he had spoken when he was here on the subject, had advised him to get goats of the Anglo-Nubian breed from Baroness Burdett Coutts' herd in England.

Mr. McGrath said that as so much Indian blood had been introduced into the cattle stock here, he thought it the duty of the Society to encourage the use of British breeds again, and he would support the importation of a Shorthorn bull.

Mr. Craig said that he thought the matter should be further considered, and suggested that the whole matter should stand over until next meeting, when there would be more members to discuss the subject. This was agreed to.

Cattle Traders' License.

Mr. Muirhead said, that in asking for the matter of license for traders in cattle to be discussed by the Board, he did not for one moment think that the imposition of such a license would remedy the depressed condition of the cattle trade in Jamaica, but he thought

that as all other traders paid license, those who dealt in cattle should be called upon to be under some restriction just as horse dealers were. He quoted an instance sent him by Mr. Williams, where in Bethel Town, Westmoreland, a very small place, which could only support one regular butcher, no fewer than nine individuals sent in meat to the Saturday market, the result being that the meat was practically thrown away. He would move that the Live Stock Committee be asked to make enquiry into the matter of the cattle industry in Jamaica, and report to the Board, with any suggestions to remedy the present depressed condition of the fat stock market in Jamaica. Mr. Fursdon seconded.

Mr. Williams wrote that he would support the idea of a small trade license for butchers, not £5 or £10, but say £1.

Mr. Craig said the Committee might also consider the idea of inspection of butchers' cattle.

Mr. Fursdon said that it had already been pointed out to the Government, that while beef was inspected in Kingston, it was not inspected in St. Andrew, where most of the tourists stayed, and many of the better class of people.

Mr. McGrath moved the following :—" That in the opinion of this Society, the state of the cattle industry of the Colony and the deplorable waste of beef in the several markets of the island, call for enquiry if the cattle industry is to be sustained, and it is resolved that the whole question be referred to the Live Stock Committee, with the object of ascertaining all the circumstances connected with the depressed condition of the industry, and to make any possible suggestions for its betterment."

Mr. Muirhead withdrew his motion and seconded Mr. McGrath's motion, which was agreed to.

It was resolved that Mr. McGrath should be added to the Live Stock Committee of the Society.

Medals for Cotton. The Secretary submitted the following letter from the Colonial Secretary :—

3119-3550.

Colonial Secretary's Office, 11th April, 1906.

SIR,—With reference to your letter No. 3581, dated the 26th ult., relative to the proposal of Sir Alfred Jones to offer gold and silver medals for cotton growing, I am directed to transmit, for the information of the Jamaica Agricultural Society, a copy of a letter on the subject which has since been received from Sir Daniel Morris.

2.—In view of Sir D. Morris' statement, that the details will be arranged between the Governors of West India Colonies and the Imperial Department of Agriculture in the West Indies, the Governor will be glad to be favoured with the suggestions of the Board of Management of the Society so that he may be enabled to reply to Sir Daniel Morris.

I have the honour, to be Sir, your obedient servant,

T. LAWRENCE ROXBURGH, Asst. Col. Sec.

Imperial Department of Agriculture for the West Indies.

Barbados, 15th March, 1906.

The Hon. the Colonial Secretary, Jamaica.

SIR,—In reference to correspondence, I have the honour to state, for the information of His Excellency the Governor, that Sir Alfred L. Jones, K.C.M.G., has been in communication with the Colonial Office in regard to the conditions

under which the Gold and Silver Medals offered by him for competition amongst the growers of cotton in the West Indies might be awarded.

2.—It has been agreed that the details are to be left to be arranged between the Governors and this Department.

3.—In the case of Jamaica, in my letter of December 4th last, I suggested that one gold and two silver medals might be offered for presentation by His Excellency to the best cotton growers on lines to be recommended by the Board of Management of the Jamaica Agricultural Society. Possibly, the silver medals might be offered for competition at Agricultural Shows in one or more districts where the quantity of cotton cultivated would justify such a course. Should this proposal prove unsuitable owing to the special conditions existing at Jamaica, it might be taken into consideration whether the two silver medals as well as the gold medal might be offered for competition amongst growers on crop results. Those competing for the medals might be required to furnish particulars at the end of the crop 1906-7 as follows:

(1).—Area planted with Sea Island Cotton.

(2).—Quantity of cotton weight in pounds actually shipped at the end of the crop 1906 or 1907.

(3).—Price per pound obtained for all grades of cotton grown in the area given under (1).

4.—In the event of any difficulty arising either as to the quality of the cotton shown at any of the Agricultural Shows, or in regard to the relative merits of the crop results, this Department will be happy to afford any assistance in its power.

5.—In reply to the inquiry contained in the last paragraph of our letter of December 23, I am unable to afford information in regard to the exact cost of each medal. As an approximation, I would place the value of the two silver medals, packed in case, at £1 each, and the gold medal packed in case at £5.

I have, etc., (Sgd.) D. MORRIS,

Commissioner of Agriculture for the West Indies.

After discussion, in which Mr. Fursdon and Mr. Ronaldson pointed out, that owing to the heavy expenses necessary to keep down insect pests, this year it was probable that less cotton would continue to be grown, the whole matter was referred to the Staple and Minor Products Committee for consideration and report.

Canadian Exhibitions. The Secretary submitted the following letter from Sir Daniel Morris *re* Canadian Exhibitions:—

Imperial Department of Agriculture for the West Indies,

Barbados, 28th March, 1906.

Dear Mr. Barclay.

I hope in spite of the fact that the Government is unable to increase the grant to the Agricultural Society, that it will be possible to arrange for sending a fair quantity of commercial samples to the Exhibitions to be held this autumn in Canada. I would estimate that if Jamaica makes a contribution of say £10 to £15 towards the expense of fitting up a Jamaica section, that the expense of getting together samples and packing them will not be very considerable.

If it is found impossible to obtain any funds from the Government, I hope the Board of Management will not abandon the idea even if it is necessary to ask for public subscriptions for the purpose. It would be a great pity if Jamaica were left out, when practically all the other colonies in the West Indies will make a show of their commercial products.

This Department is prepared to undertake the publication of a general

Handbook of the West Indies for distribution to commercial men in Canada, and it is not unlikely that an officer of this Department may attend the Exhibitions and do what he can to create an interest in West Indian products.

I would esteem it a favour if you would be good enough to let me know what is ultimately decided upon as early as convenient.

With kind wishes, sincerely yours, D. MORRIS.

The Secretary was directed to reply to Sir Daniel Morris, that the Board regretted that they had no funds whatever to enable them to collect and forward exhibits, and that there was not public interest enough to call for private subscriptions.

Diseased Coconut Trees. The Secretary stated that on the return of the papers on the subject which had been circulated among the members of the Live Stock Committee, he had sent them on to Mr. Cradwick for his remarks, concerning opinions expressed that the bud-rot disease only attacked those trees that were on ill-drained land. Mr. Cradwick had sent on his statement now submitted, through the Director of Public Gardens, but the papers had not been returned to the office yet.

It was resolved upon in Mr. Cradwick's absence, in the absence of the papers referred to, discussion of the matter was held over until next meeting.

From W. Cradwick, Instructor in Agriculture.

To the Director of Public Gardens.

SIR,—I return herewith papers regarding coconut disease which were sent to me at your suggestion.

I note the remarks of the members of the Staple and Minor Products Committee on the subject, also the letters of Mr. Dewar and Mr. Santleben.

You yourself must be aware that the disease affecting any plants, let alone such exceedingly difficult trees to examine as the coconut, must of necessity be very difficult to grapple with. All blights I take it are obscure, although very deadly in their action, and can only be determined as a rule by long and patient scientific investigation, and are not to be disposed of in the off hand manner one would imagine they might be, after reading the remarks contained in the papers forwarded to me. Take Mr. Santleben's letter of the 16th for instance, this shows that his observations have been made very casually. He says:—"The disease attacked many years ago the trees at a place called Chatham near Montego Bay, in course of time it left a certain portion of trees and went on to a place called River Bay, belonging to Catherine Hall Estate, and a good many were decimated"; he goes on to say that it has passed over Bogue, not touched Spring Garden or Orchard, but has touched Blue Hole, passed Barbican, Mosquito Cove, Point and Hopewell, and so on.

Pencil marks on the margin of Mr. Santleben's letter, apparently by another gentleman, indicate that in his opinion, the disease has simply attacked those places where the land is badly drained, and missed out places where drainage was good. This is not so, the bud-rot disease is present from Chatham to Lucea at Upper Hopewell; two or three years ago four or five of the finest trees I have ever seen, growing on beautiful sandy land near the sea-shore, suddenly died, there was no question of drainage there, it was absolutely perfect.

Mr. Simmonds remarks that there appears to be but one way to deal with the disease when developed, i.e., to destroy the tree.

Santleben remarks where the spraying of coconut is concerned this is utterly of no use. Mr. Simmonds remarks and that of Mr. Santleben's are perfectly correct once the disease has reached a certain stage, but there is not the slightest doubt that the spraying with Bordeaux Mixture will arrest the disease if the spraying is done in time.

There is only one way in my opinion to stamp out the disease, *i.e.*, to cut down and burn all the trees which show signs of being badly affected, and to spray every other tree all through Jamaica.

I am strongly of opinion that every tree in that area is infected with spores of the bud rot, it is simply a question of the tree being in a condition favourable to the development of the spores for that tree to die. There is no doubt, that in damp, badly drained situations, the progress of the disease is more rapid than on sandy soils, where the trees are planted thinly and swept by sea breezes, but even in such situations, there is no guarantee that we may not get a season when atmospheric conditions would so favour the spread of the rot as to wipe out every tree.

I think with an efficient spraying apparatus, that the increase in the crop of nuts would amply repay for the spraying of the trees, as the same disease which causes bud-rot, is responsible for the dropping off of fully half the young nuts produced by the trees in the western part of Jamaica.

It will be well if people interested in coconuts, would keep their minds quite clear regarding the difference between bud-rot and the failure of the trees caused by unsuitable soil, bad drainage, etc. Professor Earle, while here, was inclined to put down everything troubling the coconuts in the western parishes to bud-rot disease; there seems a tendency on the part of the gentlemen discussing the subject in these papers to put everything down to bad drainage, but as I contended from the time of Professor Earle's visit the trouble is due to both causes. The young coconuts at Bogue, which I recommended Mr. Edwards to drain, have improved wonderfully since the drainage was carried out, but the trees on the sandy part near the sea are still dying by degrees from "bud-rot," and Colonel Malcolm intends to spray all these. I notice that Mr. Dugald Campbell remarks that it would appear that when the symptoms are first observed, that the tree is doomed. This is not so, providing the observer knows the symptoms and will search the flower spikes; this is the fatal spot, and if Mr. Shore will keep this distinct from "attenuation" from unsuitable land, I think that he will soon come to the conclusion that this disease is primarily caused by injury to the flowering part alone, and that "bud-rot" disease does not come from the roots.

I have the honour to be, etc.

(Signed.) W. CRADWICK.

Produce Protection Law. The Secretary submitted letter from the Colonial Secretary as follows :—
2900-3301. Colonial Secretary's Office, 4th April, 1906.

SIR,—I am directed to acknowledge the receipt of your letter, No. 3582 dated the 26th ultimo, reporting that, for the reasons stated, the Board of Management of the Jamaica Agricultural Society are unanimously of opinion that the two shillings Produce License should be abolished.

2.—In reply, I am to state, for the information of the Board of Management, that the Legislative Council has passed a resolution condemning the two shillings License and that a very early opportunity will probably be taken to give legal effect to that resolution.

I have the honor to be, Sir your obedient servant,

T. LAWRENCE R. NUBURGH, Asst. Col. Sec.

Mr. Fursdon said that he did not see anything on the Agenda about the matter he had mentioned at last meeting—the inclusion of a list of stock-raising properties in the Jamaica Handbook.

The Secretary said he had written the Editor of the Handbook making the suggestion, and asking if it could be done, but had no reply so far.

The Secretary stated that he had just received a letter from Mr. Charles A. Nunes, Falmouth, as follows :—

"I would suggest at the next meeting of the Agricultural Society the Board of Management be asked to request the Government to publish in each

issue of the Jamaica Gazette the exportation of cattle and horsekind from this island—showing the various ports from which such stock are shipped and to what foreign ports exported, also the various classes of stock so exported. This latter could easily be done by the Collector-General requesting that the clearance of each ship show such particulars."

The Secretary was directed to write the Colonial Secretary and make this suggestion.

Horticultural Exhibition. The Secretary submitted letter from the Secretary of the West India Committee as follows :—

25, Seething Lane, London, E.C., 23rd March, 1906.

SIR,—I am pleased to tell you that the Jamaica fruit which you were good enough to collect and forward, fared very well at the Colonial Fruit Show at the Royal Horticultural Hall, which was opened yesterday and closes to-morrow.

For the purpose of exhibiting the fruit, we utilised the Jamaica trophy from last year's Colonial Exhibition, and I shall hope to reproduce a photograph of it in the West India Committee Circular in due course.

I personally superintended the arrangement of the fruit and was present at the judging. The judges were most favourably impressed, especially with Mr. A. W. Gardner's grape fruit, which were beautifully packed in boxes with frilled paper, after the style adopted for tangerine oranges in Spain, and Mr. Lucas' pines, which they said was the best they had ever seen from Jamaica. With regard to Mr. E. F. Coke's lemons, they said that such fruit would find a ready market from June to September, if they could be supplied in those months, and they added that when there was a shortage last year owing to the failure of the Neapolitan crop, they would have retailed at 4d. each! Mr. Muirhead's oranges were favourably commented upon, the judges being impressed by the improvement in colour and general quality.

The following awards were made :—

A. W. Gardner & Co., large silver Knightian medal for grapefruit.

G. L. Lucas, silver Banksian medal for pines.

E. W. Muirhead, bronze Knightian medal for oranges.

E. F. Coke, bronze Knightian medal for lemons.

The West Indian Produce Association, Limited, silvergilt Knightian medal for general display of West Indian produce.

Will you kindly notify such of the above as are resident in Jamaica, accordingly, and inform them that the actual medals will be presented to them and forwarded in due course?

Will you also be good enough to forward these remarks to the local Press, in the hope that they may stimulate other fruit growers in your colony to participate in future exhibitions, of which due notice will be given in the West India Committee Circular?

In conclusion, permit me to thank you for the trouble you have taken in this matter.

Yours truly, ALGERNON E. ASPINALL, Sec.

The Secretary was directed to thank the West India Committee, and the Secretary Mr. Aspinall, for the trouble they had taken in the matter.

**Half-Yearly
General Meeting.**

It was resolved to fix the Half-Yearly General Meeting for the same day as the Board Meeting on 17th June at 12 30 p.m.

Affiliation. An application for affiliation from Sergeant-ville Agricultural Society in St. Catherine, formed by Mr. Cradwick in December, which had conformed to all the rules, and had a membership of 46, was submitted, and affiliation granted.

New Members The following new members were elected:—

Messrs. M. M. Alexander, Harbour Street, Kingston; F. S. Sturridge, Mandeville; John B. Lambert, Barossa Creamery, Mandeville; Allen Wilson, Port Henderson, Gregory Park; Thomas Astley, Windsor Castle, Pear Tree Grove; Pehr Olson-Seffer, Ph. D., Escuintla, Chiapas, Mexico; Henry D. Rogers, c/o U. W. Newman, 46, Port Royal Street, Kingston.

The meeting adjourned till Thursday, 19th April, at 11.30 a m.

SILAGE IN JAMAICA.

(Following our article on Ensilage in March Journal, we now present the following article of how a Silo was built here, and silage successfully stored and used. Mr. Kerr will be glad to show his silo to visitors at Barossa.—Ed.

I have been asked to write a short account of my Silo, how it was built, packed, and my experience with the silage as I find it now.

First of all, let me put forward some of my reasons for trying the silage, and why I considered a good silo would furnish cheaper and better food and increase the producing powers of the land.

1st.—Double the amount of stock can be kept on the acreage by using a silo than would otherwise be the case, as under the siloing system, each acre will produce twice as much food.

2nd.—When the silo is filled with corn at its roasting stage, the land is cleared earlier than when the crop is left to mature, and you can invariably get a crop of peas before the next sowing of corn—which not only helps to do the land good, but in most cases almost pays for the cultivation of the land.

3rd.—There is a loss approximately of 25 per cent. of the feeding qualities of the corn crop, which results from curing in the field as compared with siloing same. In the field curing-process, the leaves and the tender shoots when dry are brittle and break off and are left to waste in the field; but the greatest waste is from the chemical changes that take place during the curing period. This is easily proven; in the spring months the cow has a larger yield of milk, while she really has no more feed, than in the months from December to March, when the feed is different. Good ensilage is the nearest possible approach to May and June grass.

4th.—Perfect and uniform feed is necessary to the general health of the stock. A succulent feed is nature's food. As the general health of the cow has a good deal of bearing on the quality of the products from the cow, one has nothing to lose, and everything to gain, by the adoption of a silo.

5th.—The increase in the flow of milk from the feeding of good ensilage has been proven in all other countries. It is not possible

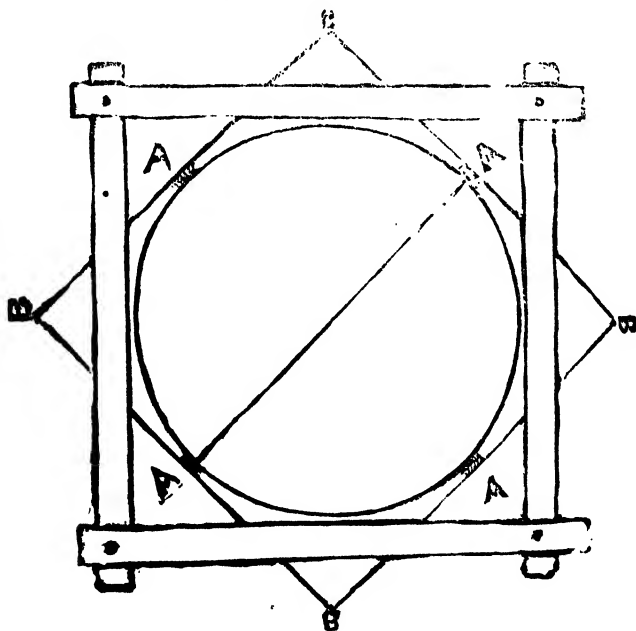
to feed butter fat into a given quantity of milk, but, by judicious feeding and *increasing* the amount of milk, an increased amount of butter can be produced.

Building the Silo.—My silo is a round wood-stave green mountain silo, 10ft. wide by 23ft. high. Capacity, 30 tons, imported from Rutland, Vermont. The staves are pine, grooved and tongued, 1 $\frac{1}{2}$ in. thick, 5 $\frac{1}{2}$ in. wide, in lengths of 14ft. and 8ft., joined by steel splines, staves banded together by $\frac{3}{4}$ in. and $\frac{5}{8}$ in. round rods of iron.

There are eight doors that fit into a frame, and perfect contact is secured by using two bevels and a rabbet, thus making three distinct bearings, insuring air-tight joints, and as the door opens away from the bevels it can never stick.

The foundation to set the silo on was made of concrete; care being taken when finished to have the surface level and smooth.

The silo is set up as shown in figure now given, which shows the cross section of the method I used in construction.



The posts (a a a a) were of round wood 8in. dia. 24ft. high, run the entire length of the silo. These were first set up vertically and stayed securely in place. The scaffolding was constructed by setting up smaller sized posts in the position shown in figure, as b b b b. Boards nailed from these, and to the large posts formed a rigid frame work, across which the planks for the scaffold platform were laid. Before the scaffolding is all in place the staves should be stood up within the enclosure; otherwise difficulty will be experienced in getting them into position.

Filling the Silo.—The corn should be left in the field before cutting until it has passed through the dough stage, *i.e.*, when the kernels are well glazed. Then the corn stalks are cut near to the

ground and bundled in rather small bundles. It may seem to take a little more time, but the loaders, the hawlers, the unloaders, and the silage cutter itself, will handle much more corn in a day if the bundles are small and light, and it will be found economical if this is done. The corn having been carried to the silo, it has still to be reduced to a fine homogeneous mass, convenient for feeding and economical as far as utilization of the silage for feed. In order to do this, the whole of the corn, ears and all, was run through an "Ohio" ensilage cutter.

The corn is run through the cutter, and the carrier attached to the cutter delivers it into the silo. My cutter is fixed with shredder blades to cut into half-inch lengths, speed 700 revolutions. I filled my silo the first week in December, and started feeding it the latter part of February. I find it hard to get the old cows eat the ensilage, but I have some heifers and the younger stock feeding quite greedily on it, and have given as much as 5lbs at a feed to a ten-week old calf, and found it had no injurious effect in shape of being too laxative.

I consider it takes four acres of corn to fill my silo, and counting from the time I cultivated the land for planting, till the silo was filled, it cost me £6, that means a ton of ensilage only cost me 4s.

LIONEL P. KERR,

Barossa Creamery, Mandeville P.O.

ENSILAGE.

In the Transvaal Agricultural Journal for January, there is an account given of a first trial of ensilage which gives hints which should be useful to us here :—

"The corn I used for ensilage was "Eight-Rowed Yellow," sown last week in November, and we commenced cutting in first week of March, at which time the cobs were properly formed and the stalks contained most nutriment.

The stack was made round and measured 20 feet in diameter. The corn stalks were cut when quite green, and stacked the same day they were cut. About five tons were added each day until the stack was completed. It was then weighed with large stones placed evenly over the top ; estimated weight, 40lbs. to the square foot.

The stack was opened 100 days after being weighted and was quite cool. The stack cut about 50 tons of first-class ensilage, not including a small quantity of inferior quality which was taken from the top and sides.

In making the stack, great care must be taken that the corn stalks do not slip, which they are liable to do. To prevent this, poles should be placed in the ground pretty close together round the stack, so that it may be built up evenly. I think an intelligent man must superintend the building of the stack, as so much depends upon the stalks being laid close together and evenly. Further, I believe that, when procurable, iron rails—from the line—laid close

together on the stack would be preferable to stones, as the weight would be more evenly distributed ; the stack would be less liable to slip, and, consequently, there would be less waste.

The making of the stack and using the ensilage as feed for horses was an experiment by us, and both proved highly satisfactory. So excellent do I consider it for horses, that I shall probably make considerably over 100 tons during the coming season.

The corn should be sown thick, so that they will grow tall and the stalks are not too thick. I intended making a silo pit this season on the Indian principle, but I do not think, from past experience, that the ordinary stack can be improved upon here.

The horses running in paddocks get 4lbs. of ensilage, chopped with 2lbs. of lucerne, daily ; an ounce of salt, and a few lbs. of crushed corn. From the first they liked it, and did remarkably well on it. Many horses not doing well before soon showed signs of improvement. The droppings were of a particular healthy nature. The stable horses also had a few lbs chopped and mixed with other food—even with those working—at mid-day feed, and did well on it. I believe it has only been used in Natal for cattle, or chiefly so, but experience tells me that when chopped and mixed with other food, or even chopped and given without other food, it is an excellent feed for horses when running on dry grass. I found that after the first feed or two, all the horses liked it, and cleaned their mangers, whether given by itself or mixed with other food.

INOCULATION FOR ANTHRAX.

THE following information in reference to the inoculation of cattle and small stock by means of anti-anthrax serum, has been furnished by Mr. R. A. Stoute, D.V.S., Consulting Veterinary Surgeon to the Imperial Department of Agriculture for the West Indies :—

Pasteur's serum may be obtained from Messrs. C. H. Huist & Co., Red Lion Square, London, W.C., and the Pasteur Vaccine Co., 366, West 11th Street New York. The cost of the above varies, but it is usually at a cost of about five dollars for sufficient to inoculate fifty oxen or one hundred sheep.

In using the serum it is advisable to obtain a hypodermic syringe of sufficient size to contain four doses for cattle, or eight for sheep. The syringe is fitted with a screw so that the size of the dose may be regulated. The serum must be used as soon after it is obtained as possible, the tubes to be kept closed till ready for use ; they are well shaken, opened, and at once drawn in the syringe, which has been disinfected. As soon as the injection is made, the thumb is placed over the hole made by the point of the syringe and the spot gently rubbed with the other hand.

Sheep are injected under the skin of the right thigh, while oxen are injected just behind the right shoulder for the first and behind the left for the second serum. The hair must be clipped from the part. Very young animals or those that are in an advanced stage of pregnancy should not be subjected to the serum inoculation.

Great care must be taken in handling the serum, as it may be quite possible to introduce the disease ; and for the same reason animals in any district in which the disease has not made its appearance should never be treated with serum. The immunity produced usually lasts for about one year.

INSECT PESTS.

WE have a great many letters from correspondents asking how to rid domestic animals, particularly dogs and cats, of lice and fleas, and more particularly how to keep these pests off.

From our own experience, it is not a difficult matter to use a wash which will kill off all the parasites on animals, but, whenever the animals dry the pests reappear. Wherever dogs are kept, fleas inhabit all the cracks and dust heaps about the out-houses and yard, and then the neighbours' dogs are probably not washed at any time, and are covered with fleas. Therefore it is particularly difficult for careful and cleanly people to keep their own animals clean. If an insect destroyer is used with anything to make it adhesive or sticky so that it will retain its effects, then the dog's hair has a rough appearance and dirt and dust stick to it. We have, we think, used nearly every kind of disinfectant, powder and wash for killing insects, and while they are nearly all effective in clearing the pests off, our trouble, like that of our correspondents, has been to find something that would have a deterrent effect. We used Spratt's Patent Dog Fluid, made especially for dogs and cats, and which contains sulphur, and found it about the most effective thing to use, but even it did not retain its effects much longer than the others. The administration of sulphur internally is very good, as this is excreted in a very short time through the skin, all domestic animals should have a little sulphur in their food occasionally, but even this cannot be given often enough or else it affects the health of the animal. There seems this year to be an epidemic of fleas everywhere, and as so many letters continued to reach us on the matter, we wrote Messrs. Spratts, Limited, London, enclosing a correspondent's letter. We publish the letter and reply as follows :—

15th January, 1906.

SIR,—Can you tell me of anything to kill lice on cats? My pretty white cat has got covered with those dreadful creatures, and though I have bathed him in a strong solution of Jeye's (and afterwards washing it off of course) and used Keating's powder on him too, I can not get rid of the lice. I have thought of clipping off his fur but don't want to do that until I have used other means of exterminating the lice. Excuse my troubling you, but I think perhaps you can give me some advice in the matter and I should be very grateful. Wishing you all good for 1906.

Spratt's Patent Limited, 24 and 25, Fenchurch Street,
London, E.C., 14th February, 1906.

John Barclay, Esq., Jamaica Agricultural Society, Kingston, Jamaica.

SIR,—We are in receipt of your letter of the 19th ultimo, covering letter from ———.

We can quite appreciate the difficulty of animals suffering from insect pests in the tropics; but regret that we have no remedy, which, when applied to a dog or cat, will retain its efficacy so as to prevent the animal being re-infested. Of all the parasites mentioned, lice are the most easily got rid of. All that is necessary is to thoroughly wash the animal, using some disinfectant, and using afterwards a finetooth comb. The lively pulex is the most serious pest as he inhabits cracks and crevices about the house, also in any sheds and out-houses. In towns you ought not to be troubled much with ticks. In the country of course it is a different matter, as every leaf in the garden or pasture

has its quantum of insect life. The difficulty of ridding dogs of insects is considerably increased when long-coated ones have to be attended to, and this also applies to cats. We think it would be a great mistake if your enquirer were to clip her coat, so as to rid him of the pests, as to do so he would practically have to be kept shaved for the rest of his life.

The letter from your correspondent is returned herewith, and, under separate cover, we are sending three copies of our Dog Diseases pamphlet, which contains a chapter on parasites.

Yours faithfully, SPRATT'S PATENT LIMITED.

NOTES ON RAISING COCOA PLANTS.

BY W. CRADWICK, Instructor in Agriculture.

I am so often asked which is the best way to raise cocoa plants—plant them in beds, or plant them out in the field where they are to remain, that I will endeavour to set out the advantages and defects of both system, and the best methods of carrying out both plants. I wish to say here, that if intelligently carried out, the plan of raising the plants in beds and bamboo pots, will be found to be the best, and I shall describe this method first.

First, select your pods from strong, healthy, regular bearing trees, select the biggest pods from the main trunk of these trees, then be careful to select the biggest and best beans from such pods.

Beds large enough to contain seeds for whatever number of plants it is desired to raise, should be prepared as follows:—Fork up to the depth of the fork the beds or bed, 3ft. 6in. in width, fork the soil up and smash it as fine as though it were desired to sow the smallest and finest of seeds. If this is thoroughly done, it will be found that the bed is four or five inches higher than the surrounding soil. If the bed is made on light, rich, well drained land, there will be no need of further preparation. Make the bed smooth on the top, take the cocoa seeds and lay them on the surface of the bed in rows, the seeds being two inches apart, and four inches between the rows. Then take nice, fine, rich earth, and cover them to a depth of about half an inch, not more, this will secure a uniformity of covering, and if the bed is kept regularly moist, every seed will pop out about the fifth day.

The situation of the bed is of the utmost importance, if it can be so arranged that it is lightly shaded by any growing tree, that is all that is required, but the beds must on no account be near bamboos, logwood, or other trees which have a drying effect on the ground. If it is not possible to put the beds in the shade of a favourable tree, make the beds in the open, running from east to west, and erect a light covering of coconut boughs; this covering should be six inches wider than the bed on each side, it should not be flat, but with a good slope, the highest part being on the north side so as to let in as much light as possible, at the same time keeping out the direct rays of the sun. If the roof of the shed is 20 inches from the ground on the south side, and three feet on the north side, this will be found to effectually shade the young plants. Keep the beds very moist but not sodden with water.

As soon as the young plants have two good strong leaves, which should be in from two to three weeks from the time of planting these seeds, they should be removed from the beds, but before this operation can be undertaken, sufficient bamboo joints should be prepared to receive the young plants; these bamboo joints should be of well ripened bamboo, and the bamboo joints or pots should be cut as near the following dimensions as possible: Ten inches in length and two-and-a-half inches in diameter at the top, if the bamboo pots are not of a uniform height, there will be great difficulty in watering the plants properly, some will get too much water and some not enough. Both the top and bottom of the bamboo pot should be perfectly level, or there will again be difficulty with the watering. If the bottom of the pots are not level it is impossible to stand them up straight, they will lean and the young plants will not be properly watered; for the sake of appearance even, the bamboo pots should be uniform.

Ten inches in depth for the bamboo pot is quite sufficient; I have seen them 20 inches or nearly so, where the bamboos grow luxuriantly, which means when the young plants are to be transplanted to the field, double the necessary weight of soil has to be lugged about. A hole in the bottom of the bamboo joints about half-an-inch in diameter must be made; if smaller than this it will get blocked up, and the young plants suffer from bad drainage, if larger than this, the soil is apt to wash out through the hole. Place two or three stones about an inch in diameter in the bottom of the bamboo pot, and it is ready for operation. A table or bench of a convenient height for the potter should be prepared; on this set out on the right hand side the soil in which you are to put the young plants; this should be fine, rich, fresh and good, free from stones, sticks or any material which will injure the young plants, or the hands of the potter. On the left hand side, have the pots prepared as before recommended, ready for the potter.

The soil must not be wet or dry, it must simply be moist. Take up a handful, squeeze it hard, open the hand, if it remains in a clod, it is too wet, if it crumbles to powder it is too dry. If the soil is used too dry, the chances are, that the lower part of the soil in the pot will be days before it is thoroughly wet, and the ends of the roots of the young plants will suffer and perhaps die. If the soil is too wet, it cannot be pressed into the bamboo pot without making it into a clod, which as soon as it commences to dry, will more resemble a brick than something into which a delicate plant is supposed to send its roots

(To be Continued.)

CARAVONICA COTTON.

For two years past, we have been reading a great deal in Australian exchanges, about a wonderful hybrid cotton, which is said to be not only extremely robust, but to bear a high-class product. The plant grows into at a high bush or small tree, and is a perennial, not subject so far to attacks by pests. It is called Cara-

vonica Cotton. We thought its results too extravagant to put forward here, just at the time when we were busy judging of the merits of Sea Island Cotton as a special crop well adapted for our conditions, and it was not then judicious to distract attention from the efforts made to cultivate Sea Island Cotton. Now, however, is a suitable time to experiment on growing this new hybrid cotton, and the Director of Public Gardens has got a small supply of seed direct from the introducer in Queensland, and a small quantity will be sent to anyone wishing to experiment with it, if application be made to the Secretary of the Jamaica Agricultural Society. We give below part of an article from the "Melbourne Times" dealing with this cotton.

Caravonica Cotton.—The cotton plant, in all its numerous families, shows great adaptability to circumstances. In the frost ruled fields of America and Asia its life ends with the year, and it is, therefore, of necessity, cultivated as an herbaceous annual, ploughed out, burnt, and sown again with every season. In tropical Guiana and the West Indies it rises to the dignity of a perennial shrub ; in Queensland, during the last couple of years, an Italian scientist and cotton grower, Dr. Thomatis, has raised it to the majesty of a tree. It is true, the humble herbaceous cotton has its champions, even in Queensland, and it cannot be despised, since it is from it that America raises 80 per cent. of the world's crop. But America does this with black labour, and then only nets 12 dollars per acre to her cotton growers, and it is therefore obvious that in Australia, where we are determined to avoid low wage industries, a tree which, once planted, grows and bears for many years, has immense advantages over a plant which involves ploughing, sowing, weeding, and uprooting annually. America is the slave in this matter of her rigorous winters, but Northern Australia is tropical, and consequently free.

The King of Cotton Trees.—It is not alone in the saving of labor, but in fruitfulness and quality of product, that Dr. Thomatis claims to have discovered, or, rather, one should say, created, the king of cotton trees. He has crossed the Sea Island cotton of Mexico with that of Peru—varieties of different hemispheres, flowering at different seasons—and obtained issue larger and stronger than the parents, with a tendency to flower all the year round. This riotous behaviour he checked by destroying the blossoms which appeared in the rainy months from January to May, and encouraging and obtaining seed from those which appeared in the dry months suited to the ripening of cotton. Thus he obtained the docile acclimatised plant, which he calls the "Caravonica," from the estate near Cairns where it is grown, and for which he claims extraordinary merits. Within six months of sowing it bears a small crop when seven or eight feet high. When two years it is full-grown, and in size much the same as an orange tree.

About nine hundred trees can be planted to the acre, and each

tree produces from $1\frac{1}{2}$ to $2\frac{1}{2}$ lb. of clean cotton lint, or from 4 lb. to 7 lb. of cotton in the seed. The lint is worth from 10d. to 1s. per lb., and Dr. Thomatis claims the net profit to be from L30 to L40 per acre. This profit, he maintains, is available after employing white labor for picking, and paying wages of 8s. per day. If even a half or a quarter of this sanguine estimate can be realised on the bulk of Queensland cotton lands; there are dazzling prospects before the State, for all the world is crying out for cotton, and Dr. Thomatis is no mere theorist.

He has acres of cotton trees growing at Caravonica, and the lint from them formed one of the most interesting and stimulating exhibits at the Melbourne Agricultural Show. There, in addition to the Caravonica, which is almost like wool, we see a second variety, obtained by hybridising it with kidney cotton from Peru, which has a sheen and texture resembling that of silk. Seed from the former is priced at 10s. per lb., from the latter at 21s., but for general purposes, Dr. Thomatis says the woolly cotton plant is the more valuable. Already there is an immense demand for the seed. One grower of Galveston, Texas, U.S.A., desires enough to sow 50,000 acres, two Ceylon growers write for what will sow 1,000 acres each, and there are orders also from India, Burmah, Siam and Egypt.

This glowing description of the Caravonica might, perhaps, be largely discounted by the natural enthusiasm of the discoverer for his discovery, but it is borne out by cool market opinions. Dr. Thomatis quotes the Associated Cotton Spinners in Italy, Hungary, and Germany as declaring the Caravonica "better than the best of American cottons"—they "would buy all that can be grown at double current price." The leading Liverpool cotton brokers said, "that if grown largely, Caravonica cotton would open a new area in cotton culture, and valued it at 10d. per lb." The Minister of Agriculture for France pronounced it "a valuable substitute for wool." The Caravonica is estimated to yield 1,300 lb. of ginned cotton to the acre," or three times as much as any other known variety, and of superior quality.

CALF MEALS.

THE increasing utilization of our cows to supply our local wants in milk and butter, will lead to the desire for more and more milk to be drawn from the cow to exchange for ready cash. Most pasture-fed cows give three to four quarts of milk in the morning for six to eight months in the year, their calves running with them during the day, but care is to be taken that in the desire for more milk the calves do not suffer. As we remarked in an article on the Butter Factory at Barossa in March Journal, nothing can start off a calf and lay the foundation for future vitality like fresh milk, and with the ordinary run of cows with the ordinary methods of drawing

the milk once a day, the calves should get the whole of the milk, *i.e.*, should not be separated at night for at least two weeks. Even where with regular milch cows the calves are separated at birth, or even three days after, their first ration should be fresh milk. This may be stopped in a month if separated milk can be used, or half of it stopped, and a substitute for fresh milk used in the form of some of the Calf Meals now provided for the purpose, and which are on sale in Kingston as per advertisement of Messrs. E. X. Leon & Co. in this Journal. If care is taken to use the Calf Meal strictly according to instructions, the utensils being scoured clean, and the meal-gruel used milk-warm, a quart of gruel for every quart of milk drawn extra will result in gain to the owner of the cow and keep the calf all right. All those interested in the milk trade should write to the advertiser of Milk Meal for pamphlets on the subject.

COUNTRY SEWAGE.

WE published articles on Rural Sanitation in the Journal for 1902, and these notes were much appreciated, and we are glad to say did some practical good. But much discomfort, great menace to health, and an uneconomic loss of valuable fertilizing material make this subject too important not to refer to it again.

The following from the "New York Tribune" is interesting :—

"From an aesthetic point of view, I suppose the modern sewerage system so popular at the present time in cities and large towns, is greatly superior to the older methods of disposing of house wastes. The neat furniture of modern bathrooms of the first class are luxurious in comparison with ordinary back-door conveniences of most farm and village houses. The modern sewerage system is becoming so popular, that many country people are getting to feel that without a modern bathroom in the house, they are so far behind the times, that they are really ashamed to receive visits from friends or strangers who live in the city. But there are two sides to the sewer question, as to most other questions. There are also two ends to a sewer, and though one may be as white as the outside of the whitest sepulchre, the other is full of all manner of uncleanness. Many of our streams and ocean harbors are becoming exceedingly offensive to those living in the vicinity, on account of the increasing amount of filth that is being discharged into them from the adjoining country. Every one at all familiar with the laws of nature, know that city sewage contains elements of fertility that cultivated lands require to maintain conditions favourable to crop production. The country closet is too often an unsightly and offensive smelling institution, but there is no necessity for its being such. Whether standing alone or attached to the dwelling, it is almost invariably much too small, and generally set too low on the ground. Every room of that kind, should be large enough to hold several months' supply of dry earth,

especially red earth, to be used as an absorbent and deodorizer. A large galvanized pail set under a comfortable seat and emptied often, will or may prevent much needless suffering. But dry absorbents must be freely used after each and every deposit. If care is taken not to empty house slops in such vaults, much less dry earth or ashes will be required. It is better to carry slops directly to the garden, where absorbents are abundant, being particular of course to distribute them properly over the premises. If sufficiently diluted, house slops will never injure vegetation by being poured upon the soil, or a few barrels of dry earth should be set in an open shed or some not inconvenient place, where the slops not diluted, can be poured and kept for use in the garden. A half dozen barrels of such material spread round fruit trees will be highly appreciated by the plants, as will be shown by the increased production and larger size of the fruit. The soil and plants together constitute a perfect chemical laboratory for changing the unsightly and noisome into the beautiful and the useful."

RUBBER AMONG COCOA.

Splendid Results in Venezuela.—I have recently had the opportunity in Venezuela of visiting one of the principal plantations which produce that cocoa, so justly reputed, known as Caracas. Beside the interest offered me by a visit to a well-maintained and very important plantation, which is about 1,200 hectares (about 3,164 acres) in extent of which more than half is planted with cacao, I found opportunity there to study a plantation of *Castilloa elastica* rubber used as a shade tree.

The Plantation of *Castilloa Elastica*.—In 1890, when they were only beginning to think of plantations of rubber trees in South America, General Fonseca was among the first to realise the value of giving as shade to cacao, in place of the trees formerly used and which served no purpose beyond that of screens, such a tree as *Castilloa* able to furnish a valuable product. He imported 5,000 *Castilloa* seeds from Costa Rica; but these seeds, badly packed, lost their germinating powers, and only 70 seedlings could be raised. The young plants after some months were planted out in different parts of Las Monjas estate, amongst the cacaos, which gave them favourable shade. These *Castilloas* developed admirably, and it was on some of these same trees that I was able to make the tapping experiments which I refer to later.

8,000 Fine *Castilloas*.—In 1895 these first trees fruited; the seeds were carefully collected and planted in nurseries, and in 1895-96 about 8,000 plants were put out in places where shade was wanted for the cacao trees. These trees aged 8 to 9 years now, are a beautiful sight; have attained a height of 36 to 45 feet, and have an average circumference of 33 inches. I should like to have tapped these in order to ascertain the yield of this age, but pressed for time and

wanting the necessary materials, I had to limit myself to working on the 14-year old trees which were at my disposal.

Active Rubber Planting Going On.—From 1896 to 1902 there were put out on all the estates about 30,000 *Castilloa* plants, in 1902 they planted 20,000 and 25,000 in 1904. From now on they will plant 25 to 30,000 every year. The fruit ripens in June to July. The seeds carefully gathered and selected are immediately sown in nurseries prepared at different places on each estate in order to avoid transport of the young plants, which are planted out when 8 to 10 months old, from April onwards, that is to say the beginning of the rains, till September. Natural nurseries are also formed at the feet of isolated trees where the seeds have not been carefully collected. At about 4 or 5 years the *Castilloas* easily out-grow the cacao trees and commence to give them a little shade. As they plant up *Castilloas* on the property they kill out the "Bucares" or other shade trees, ring-barking them with the axé at about a yard above the ground. The sapwood is also cut so as to encourage fungus and insects which lead to rot and the fall of the tree in a few years. In this way the *Castilloas* will gradually replace all the other species employed as shade trees.

Tapping Results.—In three consecutive days' tapping I procured from 6 trees 4,300 grammes (8·6 lb) of latex, which gave 1,140 grammes (2·28 lb) fresh rubber (weighed the day after coagulation), or an average of 190 grammes per tree, and an average of 63 grammes of rubber per tree per day. I estimate that these trees, to each of which I applied 4 tapping cups, could be tapped 40 times in the space of a year, in one or more tapping periods, and yield each 2,400 grammes (4·8 lb) of marketable rubber, that is weighed 2 months after coagulation. This valuation is by no means exaggerated; it is known, indeed, that much larger quantities of rubber have been taken many a time from *Castilloas* 12 to 15 years old at a single tapping.

Small, Repeated Tappings Recommended.—But I recommend the treatment of the trees by small repeated tappings, which in my idea, offer a double advantage: (1) as being much less prejudicial to the future good of the tree than one big tapping made at one time by means of a spiral cut, or by numbers of knife-cuts made the same day all over the available trunk surface; and (2) profiting by the tree being accustomed to the tapping, a fact the importance of which I have noted in regard to the *Hevea*, and of which I have known a very marked effect during the short period of three days during which I made my experiments.

The same trees, tapped in the same way, gave in fresh rubber (weighed after coagulation and pressing):—

1st day	.	.	240 grammes.
2nd day	.	.	275 "
3rd day	.	.	618 "

***Castilloa* Causes No Harm To Cacao.**—The yield of *Castilloa* plantations is no longer to be doubted, the result obtained at Ocumare

is a new proof; but the experiment made by General Fonseca is specially remarkable, as it shows that the *Castilloa* can be grown among cacao trees without in any way harming their production.

Indeed, at Ocumare, they have noticed no diminution in the number of pods carried by the trees shaded by *Castilloa*, nor any change in the quality of the bean. It is regrettable that on this property no plantation has been made of *Hevea braziliensis*, which I am convinced would do marvellously in this deep and well-irrigated soil.

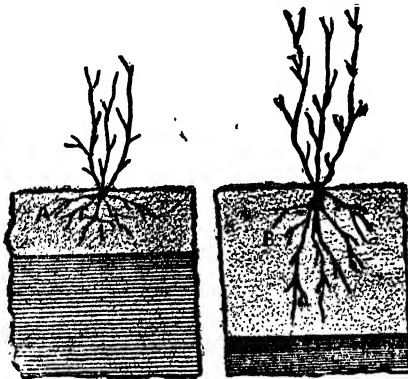
However that may be, there are to-day in General Fonseca's plantations at Ocumare, about 80,000 *Castilloas* of all ages, of which 8,000 have reached 10 years; and this magnificent property, in which they can easily put out 200,000 more *Castilloas*, will double in value when the trees can be exploited in sections, which cannot be more than three or four years later.—(*From the French of Mons. L. Vibot.*)

DRAINAGE OF LAND.

THE part which drainage plays in agriculture can hardly be over-estimated. Drainage, natural or artificial, is essential to the growth of our economic crops. Upon badly drained land, the usual trees and plants cultivated for commercial products will not return good crops, either in quality or quantity.

All productive soils have the power of absorbing and holding a greater or lesser quantity of water. The degree in which they possess this power, depends upon the fineness of the particles which make up the soil. Thus, a stiff clay can absorb and retain more water than a loamy soil, and a loamy soil can hold more than a sandy soil. But whatever the texture of the soil is, if it be in a healthy state for agriculture, the water held in it does not remain absolutely still, but it is always in a state of motion, either passing through some stream which drains the land, or sinking through to underground channels, or from the sun's heat on the surface rising up to be evaporated. When an undrained soil on a very stiff sub-soil becomes saturated with water this will, however, remain practically stagnant? It cannot pass through or sink down, and can only be removed by the surface evaporation. However intense the heat of the sun's ray may be, it is impossible for it to be transmitted through this rising water down into a water-logged soil, neither can the air penetrate. The roots of plants cannot thrive where there is neither heat nor air, but when a channel—or what we call a drain—is cut through the soil, this state of affairs is completely altered. The water in the soil nearest the drain, drips into it; as it is thus drawn off, its place is filled with water further from the drain, which is again drawn off, so that there is a constant soakage of water to the drain. The further the drains are apart and the stiffer the soil, the slower does the water draw off. Rain water, which falls on the surface of a well-drained soil, at once sinks

and passes through the soil, taking with it heat and air, rain water will always be found several degrees above the water in the soil. Then, crops growing on such land through the free circulation of the rain water and the air are hastened in their growth, and as the rain which falls upon the land brings with it in solution some fertilising material, the roots of the plants take this as the water passes downward and through to the drains. This is why bananas which are forked and drained, grow ever so much quicker than those standing in wet soil or hard ground. Bananas are quick growers, so that the effects of forking and drainage are quickly seen. A particular result of successful drainage, and which is of great consequence, is the thorough ventilation of the soil, from the fact that the superfluous waters being drawn off from beneath, the rain water passing through instead of flowing over the soil, draws after it fresh air. Every shower of rain thus arates the soil and secures that constant supply of air, which is so necessary to keep it in a state of fertility. It can thus also be seen that a hard surface will not allow the water to sink off so quickly as a soft, well cultivated



A

B

soil. From the two illustrations which we give of this, these effects of drainage in plants may be plainly seen. In figure A the roots of a plant are seen striking down, as far as the sun's heat has penetrated in evaporating the superfluous water, but they stop when they strike the wet sub-soil filled with water. In figure B are seen the roots of a plant in a drained soil where the sun's heat has penetrated deeper, and the wet sub-soil is

consequently lower down, so that there is more good soil for the roots to find food in. This is why well drained lands can stand a drought much better than badly drained lands, the roots penetrate into the deeper layers of the soil out of the reach of the strong heat which bakes the surface, and they obtain a sufficient degree of moisture to tide them over a long period of dry weather. Consequently, crops grown on a well-drained field may be but little the worse of a long drought, while those on the same kind of soil, but which if undrained, may completely burn up. As a natural consequence of a better feeding ground and a deeper rooting of the plants, the crops grow much stronger and give a larger yield, together with a greatly improved quality and uniformity of produce. This is especially noteworthy in orange and cocoa trees. Experiments made in drainage have proved that a poor soil well drained will give larger crops than a much better soil undrained. Drainage is especially valuable on clay soils, because it dries the surface

more quickly after rains and makes it more friable, therefore it can more quickly be worked after wet weather. Drainage is economical too, because the action of lime and manure of all kinds is in a great measure wasted if applied to wet land.

Natural Drainage.—There are in Jamaica many districts where the natural character of the formation of the rock below renders draining unnecessary, sometimes often impossible where the soil is very thin upon the lime-stone rock. Districts, where red soils prevail, such as in Manchester and St. Ann, are of this nature, the white lime-stone below being porous, and often having fissures or sinks which drain off the water quickly. Yet even with these soils where they are deep, as in the valleys, drains are necessary, because we have such heavy rainfalls, that where the soil is rather stiff, the water cannot run away quickly enough before other heavy showers come. Drains prevent the water lying in pools to become stagnant and sour from the hot sunshine which comes between the heavy showers. Stagnant water even lying for a short time, sours the soil and sickens the roots of trees, especially orange trees. We have seen young orange trees after long spells of alternate showers and sunshine, and where they were growing on badly drained land, become sickly looking, and their roots were found to be getting brown and slimy, the first symptoms of disease, and it is when they are in this condition that grubs more readily attack them. Lands want draining when they are slow to become friable after rain, and when the leaves of the trees growing upon them become yellow after continued rain, when what is called water-grass springs up, and when pools of water lie long after rain.

In first considering the matter of draining land that is undrained, an outlet must be found for the water. There is usually a stream, gully or sink hole which serves the purpose. In Jamaica, the drains made are usually open, owing to the heavy rush of water. In some countries, the drains are first opened, then filled with brush-wood or gravel and covered over, or tiles (earthenware pipes) are laid deep down for the water to drain into. On hillsides, drains should not be made straight down the hill, but across, leading into a sub-main which flows into a main drain at the foot. Sufficient fall must be allowed for the drains to discharge quickly the accumulation of water. The depth of drainage should depend on the character of the soil and rainfall of the district. Some banana lands for instance are drained down every row, some down every second row, where there are alluvial soils along rivers liable to be overflowed. The following, however, is a fair indication.

- 1.—Heavy clay soil 20 to 4ft. apart, 4ft. deep.
- 2.—Clay soil 24 to 30ft. apart, 3 to 4ft. deep.
- 3.—Loamy soil 30 to 36ft. apart, 3ft. deep.
- 4.—Light loamy soil 36 to 48ft. apart, 3ft. deep.
- 5.—Sandy loamy soil 48 to 60ft. apart, 2ft. deep.
- 6.—Very light soil 80 to 120ft. apart, 1½ to 2ft. deep.

Much depends upon the rainfall of the district—the wetter it

is the closer distances should be taken, and in very dry districts they may be more widely apart. Often before the land is cultivated, the rains have already made little gullies and the water has found the easiest way to run off, and it is often best to utilise these natural trenches, deepen and square them off to take off the water, besides making other drains leading into them.

'RAT AND MICE VIRUS.

THE Liverpool Virus is a living culture grown on the surface of nutrient jelly and is quite *harmless to man or to domestic animals, such as horses, cattle, sheep, goats, cats, game, birds, etc.*, but when given mixed with food to mice and rats it produces in them a disease which is fatal in from seven to fourteen or more days, and which spreads from animal to animal.

2.—The Virus may be used for the destruction of rats and mice in fields and cultivated areas, also in farm buildings and warehouses, and in private houses, etc.

3.—A large number of diseased animals come out of their haunts to die and others leave their usual runs on the outbreak of the disease.

4.—The Virus is supplied as it is grown on the surface or jelly in a tube plugged with cotton wool and paraffin wax. Before using the plug is withdrawn (which may be easily done with a light cork-screw) and the tube containing the jelly is half-filled with cold water (not iced water) to which common salt has been added in the following proportions:—

For each 8s. tube of Rat Virus take one tumblerful (one half-pint) of water in which dissolve a quarter of a tablespoonful of salt.

For each 2s. 6d. tube of Rat Virus take one small wine-glassful (2oz.) of water in which dissolve as much salt as will stand on a sixpence, in other words a pinch of salt.

For each tube of Mice Virus use double the quantity of salt solution as for the 2s. 6d. tube of Virus for rats. The cotton wool plug is then replaced and the tube vigorously shaken until the water becomes somewhat milky in appearance. The Virus is now disseminated throughout the solution and the remaining jelly is of no further value.

5.—Empty the contents of the tube into the remainder of the salt-water and then pour the whole on to a plate or shallow dish. Take some very dry bread cut into squares of about the size of lump sugar and dip them into the solution, letting it remain sufficiently long (about five seconds) to soak through. Use sufficient "squares" of bread to soak up the whole of the solution.

6.—Important.—The Liverpool Virus should be used *at once*, if kept for any length of time, or exposed to light or warmth, the Virus takes a longer time to produce the death of the animals, viz., two to four weeks. In this climate if kept or exposed for any length of time it becomes inert. A tube once opened must be used at once.

M. ROBERTS.

THE COLONIAL FRUIT SHOW, LONDON.

THE second Show of Colonial Fruit was held by the Royal Horticultural Society at their Hall, Vincent Square, Westminster, on 22nd and 23rd March, and was primarily fixed for the convenience of the Cape, whose fruit at this time is at its prime. This Colony took full advantage of the opportunity, and made a splendid display of apples, pears, plums and grapes, while Natal sent pineapples, mangoes and avocado pears, all of which, in spite of their long voyage, arrived in splendid condition, a matter which will, we hope, cause our friends in the West Indies, to reflect and to take a greater interest in future exhibitions of this nature. As it was, the West Indian exhibits, though excellent in quality were small in quantity, Jamaica being the only Colony which sent any fruit direct. For this exhibit, the Secretary of the Jamaica Agricultural Society was

responsible. The fruit was set out on a show stand from last year's Colonial Exhibition, and came in for much attention from the judges, who made the following awards:—

The Jamaica Agency (Aston W. Gardner & Co.), a silver Knightian medal for grape fruit. This fruit, uniformly graded and beautifully packed in cases of six, was practically without a blemish, and the judges were able to tell from its weight and appearance alone what excellent condition it was in.

Mr. G. L. Lucas, of Constant Spring, Jamaica, a silver Banksian medal for pineapples. The pineapples were large in size and juicy. They compared most favourably with those from Natal, which were of the smooth leaved variety. It has been customary to export pines in tubs, and they have therefore reached the market in poor condition and sold badly. If, however, they could be sent over as these Jamaica pines were, in small crates holding a dozen, there should be a great future for them.

Mr. E. W. Muirhead, of Mandeville, Jamaica, a Knightian bronze medal for oranges. A marked improvement was noticeable in these oranges, which showed evidence of careful cultivation and selection. The color was bright, and they were juicy and very sweet. Mr. Muirhead also sent grape fruit, but these were, unfortunately, not in so good condition. This fruit to arrive in perfect order should be packed in single layer packages, each fruit being carefully wrapped in paper with woodwork between each.

Mr. E. F. Coke, of Mile Gully, Jamaica, a Knightian bronze medal for lemons. The lemons were very large and full of juice, and it was the opinion of the judges that if they had arrived in quantity last summer when there was a shortage of Neapolitan lemons, they would have easily retailed at from 3d. to 4d. each. If the Jamaica lemons were graded properly and packed in small cases of 200 large, 300 medium and 400 small, they would be saleable, and if sent to arrive in July, August, September and October, they should pay commercially every year.

The next Exhibitions of Colonial grown fruit are fixed for June 6th and 7th and December 4th and 5th. There is no charge for space and the Secretary of the West India Committee will be pleased to arrange for the staging and take charge of such exhibits as may be sent over.

We trust more exhibits will be sent from Jamaica next time and we shall be glad to take charge of these and forward free of cost per kindness of the Railway Company here and the Shipping Companies.

When we were attending the Colonial Exhibition in London last year, we had consignments of lemons, among other fruit, and were satisfied that if we could send them over during the summer, they would pay better than oranges, if the fruit was large and clear-skinned, which Manchester lemons are. With a very little manipulation, we are confident lemons here can be made to bear in the summer. At any rate this is being tried

SELECTED COTTON SEED FOR 1906.

It is recognized that the most important matter requiring attention, in order to maintain the high quality of the Sea Island cotton produced in the West Indies, is to plant seed obtained from healthy plants that have given a good yield per acre, and that have produced lint which has fetched the highest price during the current season. The experience of a successful cotton grower is:—The selection of seed is the one thing that cannot be overlooked.

As it will be impossible to obtain further supplies of seed from the Sea Islands, the West Indies have to depend on their own resources. This is not a difficult matter, provided growers realize the necessity of making the selection of seed a matter of the first importance. They should be prepared to take some trouble in making themselves acquainted with the subject, and in carrying out for themselves the process of seed selection, or they should be prepared to pay a reasonable price for selected seed. Seed of inferior quality

should not be planted on any account. The difference in cost between good seed and inferior seed is a small matter as compared with the difference in the price realized for the crop.

The general lines on which cotton growers are recommended to make a choice of cotton seed for planting during the coming season are these: First, the plant from which it has been obtained should be thoroughly healthy, and they should not have suffered severely at any time from the cotton worm or other pests. The next point is to ascertain that the plants are of good habit and are prolific, yielding, on an average, say, not less than 200lb. of lint per acre. The third point, and perhaps the most important of all, is that the plants have yielded lint that has obtained the highest prices during the current year.

As already stated, the Imperial Department of Agriculture has undertaken a series of experiments in seed selection that are likely to prove of great value to the industry. These experiments are intended to cover the careful selection of seed, on field results, for immediate planting, as well as the systematic selection of improved seed for individual plants, as described in the "Agricultural News" (Vol. V, p. 38), for future years.

It has been abundantly proved by general experience both in the Sea Islands and in the West Indies, that it is impossible to obtain first-class cotton from inferior seed. In Egypt, also, the importance of selecting good seed is fully recognized. Mr. Foaden states:—"Of all plants, cotton responds the most liberally, as far as both yield and quality are concerned, to careful treatment, and the sowing of good seed is the very first essential to the production of good staple cotton. However carefully our land may be prepared and manured, the production of superior cotton from inferior and mixed seed is an impossibility." Further, there is the opinion of the British Cotton-growing Association, as follows:—"The bulk of the cotton from the West Indies is turning out very well, but you must impress on all the growers the necessity for *very careful selection of seed*, and extreme care in cultivation and handling, for unless Sea Island cotton is quite right in all respects, it suffers severely in price."

As announced in the columns of the "Agricultural News," (Vol. V, p. 89), the Imperial Department of Agriculture is prepared to supply specially selected and disinfected cotton seed for planting during the months of May to August next, and to deliver the seed at any port in the West Indies at the rate of five cents. (2½d.) per lb. Applications for such seed will be received by the principal agricultural officers in each island. Applications from Jamaica may be forwarded direct to the Imperial Commissioner of Agriculture, Head Office, Barbados. All applications will be dealt with in the order in which they are received.

In order to prevent disappointment in regard to the germinating qualities of the seed, it is recommended that immediately on its arrival it be turned out of the bags or barrels, in which it is packed, and spread out on a dry floor in order that any excess of moisture may be removed. After the lapse of a day or two, the seed may be replaced in the bags or barrels, and kept until it is planted.

It is also recommended that about 100 seeds, taken from the bulk, be sown in the soil, or placed between folds of damp cloth, as described in the "Agricultural News" (Vol. II, p. 153), in order to test its germinating power. In the event of doubt arising as to the condition of any selected cotton seed received from the Imperial Department of Agriculture, a sample of not less than 100 seed should be forwarded within seven days from the date of the arrival of the seed, to the agricultural officer through whom it was ordered, in order that it may be carefully tested. It should be borne in mind that the best results are likely to be obtained when the selected cotton seed is sown within a period of one month after it has been received.

ESSENTIAL OILS.

Correspondents have lately asked for particulars about the following :—The value of the essences (oil of bergamot, of lemon, and of oranges) exported from Sicily and Calabria in 1904. was roughly £600,000.

Oil of Turpentine.—This oil is obtained from coniferous trees. The tree is "boxed" by cutting a cavity in the bark near the root, and channels leading down to the box are cut in the upper bark. The crude turpentine which exudes and collects in the box, is distilled in a current of steam; oil of turpentine (a hydrocarbon) passes over and is separated from the water in the distillate, whilst a resin (rosin of colophony) remains in the still.

Oil of Bergamot is an exceedingly valuable and useful oil produced mainly in Calabria by distilling the unripe fruit of *Citrus Bergamiæ*. A hundred trees yield from 2½ to 3 ounces of oil.

Oil of Lemon is expressed largely in Calabria and Southern France from the fruit of *Citrus Limonum*. A hundred fruits yield from 2 to 3½ ounces of oil. A lower grade of oil is obtained by distilling the rind of the fruit.

Oil of Lime is produced in Sicily and in Montserrat (West Indies) by the sponge method from the fruit of *Citrus Limetta*.

Oil of Orange.—There are several classes of this oil. From the rind (orange peel oil) "Essence de Bigarde" and "Essence de Portugal" are produced—the former from bitter oranges, the latter from sweet oranges. The oil is obtained either by the sponge method or by distillation. Oil of orange flowers or Neroli oil is extracted from the flowers of *Citrus Bigaradia* or other orange species.

Quite a good business is being done in St. Ann in essential oils, chiefly lime and bitter orange. The oil from the latter is got in a very simple manner. There is a cheap locally-made machine, simply a tin bowl studded with copper nails, the whole orange is put in, the bowl revolves, the nails scratch the skin where the oil cells are, and the oil is drawn off through a tube at the bottom of the bowl. This oil is bought by planters who are making essential oils around Brown's Town. It is not distilled oil, but probably the buyers further treat it.

THE VIRGEN RUBBER OF COLOMBIA AND ITS CULTIVATION IN JAMAICA.

By ROBERT THOMSON.

In compliance with your request, I have the pleasure to furnish a brief account of the *virgen* rubber tree indigenous to Colombia. This rubber tree, like nearly all the important rubber trees, belongs to the great order *Euphorbiaceæ*. It is a species of the genus *Sapium*. The specific name *biglandulosum* applied to this tree by the authorities at Kew Gardens, is, I think, erroneous—*biglandulosum* is another species indigenous to vast expanses of tropical America, and is useless as a commercial rubber producer. But the *virgen* rubber tree of Colombia is an important rubber yielding species, and its area of distribution is confined to a very narrow zone in the interior of the Republic. In companionship with the true *virgen* tree, several other allied species abound, including *S. biglandulosum*. These useless species I have detected throughout a wide range of latitude on the Cordilleras, as well as on the Sierra Nevada of Santa Marta, at altitudes of from 3,000 to 10,000 feet.

About 22 years ago, at the time I was establishing a large cinchona plantation on the Colombian Andes (in the centre of the *virgen* rubber region) this rubber tree was discovered, and thousands of trees were cut down, and hundreds of tons of rubber extracted therefrom, nearly all of which was exported to the United States. A rush was made by the natives into the primeval forest in search of this tree on its discovery, and I frequently accompanied several of the rubber collectors into the great forest. The trunk of the largest tree we encountered, fifth day on foot in the trackless forest, was over 100 feet in height, and when cut down yielded upwards of one cwt. of dry rubber. The huge trunk measuring $2\frac{1}{2}$ to 3 feet in diameter fell under the axe over a deep and broad ravine, where it formed a bridge which I walked over. Trees of smaller sizes yielded from 50 to 60lb. of rubber.

It should be borne in mind that tropical forests contain a bewildering profusion of species of plants struggling for existence. Thus important trees like cinchona, rubber, mahogany and so forth, are sparsely distributed—sometimes only a few trees throughout hundreds of acres. In contradistinction to this the forests of temperate regions are characterised by a paucity of species, and many of them form great gregarious forests, (pines, oaks, etc.)

If all the rubber trees that comprised the *virgen* rubber zone, spontaneously distributed throughout about 1,000 square miles (they were all cut down), had been concentrated in a specific area, the area occupied would have been only 400 to 500 acres. Hence the importance of establishing plantations; and plantations are not cut down as the wild trees are—they yield perpetual returns under cultivation.

The prices realised for this species of rubber averaged about 3s. per lb., (rubber prices are much higher now), only a few pence less than that obtained for the most important of all rubbers—the Para. The Para-rubber is of vast commercial importance. The total supply obtained from the *virgen* tree could not have supplied the requirements of the world for more than a few weeks. The Para-rubber is systematically dried and prepared for market, the *virgen* rubber was simply spread out to dry in the sun and air, with occasional fires. But for this crude and primitive method of preparation, doubtless the price would have been second to none.

This is the only important species of rubber indigenous to the cool bracing temperature of lofty tropical mountains. The other important species grow in the hottest zones of the earth. Hence to prospective planters settling in Jamaica the climatic conditions involved are of the greatest consideration. The temperature on the mountains is like a perennial English spring. As is well-known Englishmen flock to the island of Ceylon to settle on the mountains; there the mountain climate is duly appreciated. In like manner the varied resources of our mountains are destined to attract attention.

The elevation above the level of the sea at which the *virgen* rubber was found growing in a state of nature, four degrees from the equator, ranged from 5,000 to 7,500 feet.

A few years before the collapse of cinchona cultivation in various parts of the world, including the one I established in Colombia (the Jamaica plantations also collapsed) consequent on the price of quinine falling from about 10s. per ounce to one or two shillings, I recommended my cinchona company to make a plantation of this newly discovered *virgen* rubber. I thus planted at about 5,000 feet 30,000 trees, very thickly, several hundred per acre, this with the object of thinning them out in five or six years, *i.e.*, in order to obtain a small crop from the thinned out trees. The cultivation of this rubber plantation was subservient to the cinchona plantation. The thickly set trees were not thinned out, at any rate for many years. When I saw them, on a visit, after they were planted about eight years, they presented the aspect of a jungle—a huge impenetrable mass of growth. I am unable to record the subsequent fate of the trees, but I understand that a good deal of splendid rubber has been extracted. At a considerably lower level, namely, at 4,000 feet, a coffee planter established a small rubber plantation with plants I supplied. Here the tree also flourished. The seeds were collected in the forest.

From a cultural point of view, I have never in all my experience of tropical planting cultivated a tree that flourished like this rubber tree. Every plant with its striking foliage and abounding vigour grew with great rapidity. In the course of a year the plants attained a height of from six to eight and 10 feet. In three years the stems were five to six inches in diameter, larger, and far finer trees in three years than *Castilloa* rubber at Hope Gardens in ten years. I remember having collected one lb. of rubber from

a wild seedling which was five years old. Under the elaborate cultural treatment to which the other species of rubber is now subjected, there can be no doubt that when 50 to 60 feet high, in less than 10 years, not less than one pound per tree will result. And a few years subsequent thereto double and treble this quantity per annum.

I have the pleasure to express my conviction that in certain parts of the temperate climate of the parish of Manchester, with its abundant humidity, and its peculiarly constituted soil, the *virgen* rubber could be cultivated with great success. Sites should be selected near the foot of the gentle rolling hills characteristic of the district—a district capable of being turned to more important account than any other in the island. Though this tree grows freely on high ridges in its native habitat far greater returns are yielded by trees at the base of such ridges. There are thousands of acres of land obtainable above an elevation of 2,700 feet eminently fitted for this culture in Manchester.

I have elsewhere pointed out that plants cultivated near the equator at high altitudes (coffee for instance) are cultivated in Jamaica under precisely similar climatic conditions at about 2,000 feet less altitude. Hence the altitude at which the *virgen* rubber flourishes in Colombia from 4,500 to 7,500 feet, is equalized here at an altitude of 2,000 feet less.

As the *virgen* rubber is a gigantic tree care must be taken to plant it wide apart. The permanent distance might be 24 feet asunder. In 10 or 12 years the trees would cover the ground. Subsequently the trees would not expand materially, inasmuch as tapping the trees would interrupt growth. Regular crops, I feel sure, would result from the trees when eight years old, and of course annually afterwards.

I have enriched Jamaica with some plants of this rubber. A couple of years ago I contributed these plants to the Botanical Department, plants which I raised from seed I imported from Colombia. These plants I understand have been sent to coffee plantations on the Blue Mountains. I may also mention that some 30 years ago I introduced to Jamaica the famous Para-rubber tree, and the Ceará rubber. Thus, in his report on Kew Gardens for 1877, the eminent Director, Sir Joseph Hooker, stated : “ Mr. Thomson informs me that 16 plants of *Hevea* (Para-rubber) from Kew are under his charge in Jamaica, and are doing well.”

I hope shortly to be able to supply you with seeds of the *virgen* rubber for which you have applied. In this connection, I may also mention, that I have received an application from the United States Department of Agriculture at Washington for this rubber seed. This great Department, it is interesting to note, has on my recommendation, decided to cultivate experimentally this rubber on lands which I visited and reported upon a few years ago in the South of Florida, when I was requested to visit that region by Messrs. Elder, Dempster & Co.

Half-way Tree, May 5, 1906.

POULTRY NOTES.

TURKEYS.—The raising of turkeys can be made the means of earning some money, but like every other kind of stock-raising it requires some experience, natural aptitude for handling stock, great patience and perseverance, and more than all, it requires suitable land—and commonsense. The greatest mistake made in all kind of stock raising, but especially small stock in Jamaica, is trying to raise too much stock on limited ground. We have often pointed out the fallacy of the calculation that you can raise so many stock on such a small extent of ground, you can raise more on a larger extent of land proportionately. The stock will congregate near the house where they are fed, and not utilise all the land, with the result that the soil gets foul and infected with disease germs. Then the stock begin to sicken and die off, presumedly mysteriously. The colony system is the only way to utilise all the land and rear healthy stock, but here where stealing is so rampant, such a system has so far resulted in loss by robbing. The most important point to know is to keep your turkeys out of your kitchen-yard, and let them run on fresh ground. If they can have a free run to go as they please, and the bush is kept down so that mongoose cannot lurk around, they will almost raise themselves without very much feeding. To make turkey-raising a success the following should be observed :—1, healthy, mature breeding stock ; 2, proper mating as regards age and size ; 3, proper food and water. One of the mistakes made by would-be turkey raisers is the breeding from immature birds—then young chicks are weakly, live for a week or two and die off—and then we are asked why, and the cause of the “disease.” The hens should be two years old, certainly not less than 18 months, the gobblers not less than two years, and preferably three. The best birds of every hatching should be kept for breeding. When a fine gobbler is secured it is better to keep him until old age has rendered him unfit. People generally keep their hens and sell their gobbler, when it is much easier to get fairly good hens than to get a good gobbler.

Quite often we find what is wrong with ailing grown turkey chicks is too much coddling, feeding too sloppy food, putting hot peppers over their throats (which is enough to burn the stomach of a young elephant), and stuffing with medicines. Often too there is great waste in keeping a gobbler for one or two hens; while one cock is sufficient for a dozen hens. The mating of turkeys is little understood, it is not like fowls, for one mating fertilises the whole batch of eggs, therefore it only worries and hurts the hens to keep too many gobblers. Turkeys are valuable helps in tobacco and vegetable cultivations ; as they are very clever in ridding the plants of insect pests by picking off caterpillars, bugs, flies etc., and they do not injure the leaves, or scrape out plants, so different from fowls which will eat every green thing in the way of vegetables that they like and scrape all the nice, soft soil over. Lice will often kill off a whole

flock of turkeys, especially young ones. Therefore directly turkeys are noticed looking droopy examine them for lice, especially on the top of the head, the top of the wings and the top of the tail. A mixture of sulphur, kerosene and lard, enough to make a paste, should be rubbed on the back of the head, the top and under the wings and under the tail, which will act as a trap for all lice. Insect powder should also be dusted into the feathers to make the lice move as some kinds are suckers, and stick on to the roots of the feathers. These seek to escape the insect powder and so get on to the lard trap. Those who desire to go in for turkey-rearing on better lines than hitherto, should not put off getting their birds and yards into order until next season is close at hand, but should do so between now and July, when young turkeys may be got far more cheaper than from November to April.

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INDIAN RUNNER DUCKS—We again call attention to this breed of ducks as a most useful one for our conditions in Jamaica. With the exception of Muscovies, which are very hardy, none of the large breed of ducks has been really successful here, such as Aylesbury, Pekin and Rouen, which are all excellent table breeds, while the Muscovy is not what could be called good eating—when used young, however, it is excellent. The Indian Runners are a small breed carrying themselves very erect, and as their name will indicate, they are very active: they are very gamey in flavour, though they are not large. Their chief characteristic is, however, their excellent laying ability. They lay large white eggs, and lay more, or at least as many, as the best laying Leghorn hens. In a recent 12 months duck-laying contest held in Australia, they put even the much desired 200 egg hens quite in the shade. In this contest five pens of six ducks laid during the year 1,315, 1,232, 1,132, 1,061 and 1,013 eggs respectively. While it is difficult to get hens to lay even in our winter months from October to December, and eggs are dear then, this is just the time of the year when these ducks lay most. They are hardy and easily kept, and the ducklings are active and comparatively easy to raise.

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PRESERVING EGGS.—We also desire to draw attention as we have often done before, to the matter of preserving eggs when eggs are cheap, for use when eggs are dear. About the months of July and August, just before hens begin to moult and stop laying, the eggs can be gathered and preserved in Silicate of Soda, otherwise called Water Glass, and this will keep them good for six months. All the other preservatives we have used have had defects, and in all the public tests made, Water Glass has been the most successful. Using a ten per cent. solution and storing in a cool place in the month of August, the eggs immersed in the solution will come out very good, even for boiling, and perfectly good for cooking purposes in November and December, but the eggs must be put in the solution when fresh,—they must not be kept over even for a few days.

THE USE OF CASTOR OIL.

IN the Transvaal Agricultural Journal for January, there is a full report of an enquiry into the use of castor oil as a lubricant and for lighting purposes. It seems that enormous quantities are used on the Railways and a good deal in the Mines there for these purposes. In India, hardly anything else is used for the lubrication of the engines, tenders and rolling stock, but then labour is cheap there, and people are patiently industrious, and the castor oil plant universally grown. In India they consider castor oil the best lubricant that can be got, being thick and viscons, and they say it has one great merit in its being too unwholesome for even a dog to steal. In South Africa it is sold at 2s. 3d. per gallon. Here in Jamaica, where the plant is wild, and there are women and girls in the country with plenty of time on their hands, it costs 1s. per quart and that of very crude quality, unfiltered. The East Indian Railway Co. expect 37 per cent. of the weight of the seed in oil on an average, though this varies from 36 to 41 per cent. After the oil is extracted the refuse forms a hard cake which is very valueable as a manure.

COMMENTS.

CONVICTS AND ROADS.—If our convict-labour has been sensibly utilized all these years, we would have had cheaper made and even better roads ; and also light tramways penetrating through Upper-Clarendon, St Ann and Trelawny, giving cheap transit to sea and rail. It is never too late, however, to mend our ways.

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COCOA.—We are glad that Mr. Cradwick has been able to write for us a complete treatise on the planting of Cocoa. Young coffee trees and orange trees may recover from the effects of a bad start, but cocoa is a delicate seed to start, and a delicate tree to grow, notwithstanding the fact that we may see surviving specimens along the roadside or around some settler's dwelling, which if they have received any treatment at all it has been of the roughest, but this has nothing to do with the setting out of a plantation. Readers of the "Journal" interested in cocoa should carefully file the numbers containing these articles, which will probably occupy four numbers.

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COFFEE.—With regard to the various reports on the coffee industry in connection with the question of the 2s. license, which we said would be published in this "Journal," as the matter has already been before the Legislative Council, and they have passed a resolution condemning this license, so that it will probably be withdrawn, we need not therefore publish the reports at present.

BANANAS.—We note from the report of the Superintendent of Agriculture of Fiji that the Gros Michael Bananas are attacked by worms just when the flowering spike is opening. while the Chinese Bananas are also attacked by disease, which finally cause a stoppage of growth in the growing tip of the plant. No signs of disease are visible to the unaided eye on cutting into the plant, no fungus growth can be detected by the stem or leaves. We have no such trouble here with either variety of banana.

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COTTON SEED.—The Imperial Department of Agriculture is particularly impressing upon all cotton growers the necessity for strict selection and disinfection of cotton seed before planting. The report of the sales of the last crop of St. Vincent cotton is exceedingly encouraging. Of the 117 bales shipped only one bale was sold for less than 1s. 5d. per lb., and this bale fetched 1s. $\frac{1}{2}$ d., 31 bales sold at 1s. 8d. per lb. It is said that the acreage of cotton in St. Vincent will probably be largely increased this season as a result of favourable returns.

* * * *

COTTON.—It seems a curious fact that the surest way to raise a "blow" is to plant bananas where they did not grow before, and also the surest way to start caterpillars is to plant cotton. Strange to say, the wild cotton is not at all attacked by caterpillars though planted close by, nor has the Egyptian cotton been troubled by insect or other pests.—Correspondent.

— — —

Is it not that when you have not bananas you do not feel particular afraid of a "blow," and when you have not money invested in Sea Island cotton, you don't notice the caterpillars which are feeding on something else?—Ed.

* * *

OUR EXPORTS.—In the complete list of our exports for the year ending 31st March, 1906, published in the "Jamaica Gazette" of date 12th April, 1906, one of the most noteworthy points is the promising way we are recovering from the effects of the hurricane of 1903. Last year we exported over 7,000,000 of coconuts against 4,246,000 the year before. In bananas we have risen from 8,982,000 to 14,748,000 in one year and the last figures form our highest total of any year. Oranges are a bit of a disappointment, but if the countries to which our oranges go, are criticised, we ought to take some cheer from the fact, that we increased our exports to the United Kingdom by 796,000, and to Canada over 2,000,000 single fruit; our decrease was to the United States of 7,000,000. To our mind one of the most pleasing things in connection with our exports is the large increase of shipments of grapefruit. We increased from 15,988 barrels to 27,456 barrels, and the fact that we shipped a goodly quantity towards the close of the financial year shows that it is worth while keeping over our grapefruit, if we do not sell them before November, as this is a fruit that will hang long on

the trees, besides so far as the United Kingdom is concerned, our grapefruit will be much better appreciated in the spring than in the winter time, because in the spring they are sweet and mellow.

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(GINGER.—After long depression in the price of Ginger, the markets became almost entirely empty, and accordingly this year there has been a great demand for it, and the price has risen to something like what it was 10 years ago. The crop here is not a large one, for not only was there less planted out than usual, but the yield has not been much. It seems therefore that the keen demand is likely to continue. So prices go up and down in response to the law of supply and demand. When there is a large supply the best of everything is always in demand.

* * * *

SHOWS.—A very successful Show was held at Siloah in connection with the Appleton Branch on Easter Monday. There was a first rate attendance, exhibits were very good, and there is a balance in hand of £4, which will be available to hold another Show next year on a larger scale.

The Hampstead Branch held a Show at Hampstead on Thursday, 26th April. The weather unfortunately was not promising, there being rain in the morning and evening, and this affected the attendance by at least 50 per cent., but in spite of this the receipts will more than balance expenditure. The Show was confined to members of the Hampstead Branch, and there were over 350 exhibits. Bananas and cocoa were the most notable exhibits, and surely the most important.

The St. Mary Show will be held at Port Maria on July 5th, and elaborate preparations are being made to make it a grand affair. There will be some events to make it especially interesting and lively, quite out of the ordinary run.

Three Shows are to be held on 1st August, the St. Ann Show to be held at Brown's Town, the Hanover Show at Lucea, and the Show of the St. George Branch at Buff Bay. It is unfortunate that three Shows will be held on the same date, but the 1st of August is a popular date, being a general holiday and the time of the year suits produce.

Montpelier Show will not likely be held this year, but will take place sometime during the tourist season early next year, and it is likely also that the Jockey Club will hold a big Show at Knutsford Park, St. Andrew, about the same time.

We have not heard anything about the Manchester Show, at Kendal, usually held in November.

BRANCH NOTES.

CHRISTIANA.—The annual general meeting of this branch was held in the Court House, Christiana, on 20th February. The Chair was occupied by the President, R. J. Miller, Esq., J.P., there was a good attendance of members. The following report of the year was submitted by the Managing Committee and was adopted:—The Branch met five times during the year. The attendance at these meetings, although fairly good, was not as large as the Committee would like to see. The meetings were addressed by J. T. Palache, Esq., (Local Instructor), J. Barclay, Esq., (Secretary of the Agricultural Society), and Robert Thomson, Esq., (Elder Dempster Agricultural Instructor). Each of these gave the Branch both interesting and instructive addresses on matters of interest to cultivators. In each case discussion was held at the close of the addresser, and questions were asked and answered, and this part of the meetings was felt to be most helpful. At one of the meetings, a letter was read from Mr. Hirst, who was not able to be present himself, in which useful hints on cultivation were given. During the year Sea Island Cotton seed, Vegetable seeds and plants of the "Igna Vera," a new shade tree for coffee, recommended by Mr. Thomson, have been distributed among the members of the Branch, with the view of testing the suitability of the climate and soil of the district for their cultivation. The Committee would urge on the members the necessity of getting others to join the Society. They recommend to lend their copy of the monthly journal of the Society to their friends, so that they may see what a useful periodical it is, and how many valuable hints are to be got from it and so be led to secure a copy for themselves by joining the Branch. During the year, through the initiation of Mr. Palache, a co-operative People's Bank has been started, which is now in operation, and it is believed that it will prove to be a useful agency to the peasantry in the districts round. The Report of the Treasurer was submitted. It showed that the sum at the credit of the Branch was £5 6s. 6d which was considered very satisfactory; the report was adopted. The following were elected Office-bearers for the year 1906:—R. J. Miller, Esq., J. P., President; E. A. Bayley, Esq., Vice-President; D. Walker, Esq., Treasurer; Rev. Dr. Turner, Hon. Secretary; Mr. W. C. Leslie, Assistant Secretary. Members of the Managing Committee:—Rev. G. McNeill, Messrs. J. J. Wright, R. Easy, R. Shaw, and J. Butler. The Secretary was instructed to remit the affiliation fee to the Parent Society. It was decided to change the day of meeting from Monday to Friday, as the latter day would be more suitable for the banana men and teachers. It was intimated that at the next meeting on April 6th Mr. Palache would read a paper on Poultry Rearing. The following are the members of the Branch for the year:—R. J. Miller, Esq., J.P., D. Walker, Esq., J.P., E. A. Bayley, Esq., Rev. Dr. Turner, G. McNeill, A. L. Bodfish, Dr. Halliday, Col. Hicks, Messrs. D. C. Turner, D. Broodie, J. Butler, R. Easy, E. Burt, W. H. Lipsitt, S. Ewan, F. A. Baillie, J. J. Wright, A. Elliott, B. L. Chisholm, J. Renford, A. Powell, R. Shaw, W. C. Leslie, H. D. Chambers, H. T. Cambridge, W. V. Heron, E. M. Ebanks, S. Wilson, R. Robinson, J. R. Cobley, E. A. Bayley, Saml. Forbes, D. A. Samuel, Robt. Gentle, L. R. Flemming, Chas. A. Williams, Nath. Sargeant, Chas. Russell, T. G. White, Alf Pitters.

ST. JOHN'S.—A special meeting in connection with this Branch was held at the Government School-room, Kitson Town, on Saturday, 14th April, at 4 p.m. Present: Messrs. J. B. Williams, F. Gonzales, J. Gonzales, H. Parker, R. McBean, S. A. Banton, and Miss F. M. Fuller. Visitors: Messrs. Sidney Taylor and William Wilson, who afterwards became a member. Before the usual preliminaries the members noted with disappointment the absence of the President and Vice-President. On the motion of Mr. J. B. Williams, seconded by Miss Fuller, the Secretary was elected chairman. Several letters were read from the Parent Society. Chief among these was one dealing with "worms in horses." The General Secretary was thanked for his information on the subject. We record with regret the resignation of Mr. J. B. Williams, our much respected

Treasurer. Mr. Banton was nominated as Treasurer. He in a vigorous and humorous speech, appealed to the members to nominate some one else, seeing he was already Secretary as it was unnecessary for one man to monopolise all the offices. On being pressed, he however consented to act until some one else is appointed. The accounts were audited and it was discovered that the funds of this smallest Society were in a satisfactory condition. On the motion of the Secretary the following resolution was unanimously carried: Resolved, that the amount of 4s. which is due to the Parent Society, to cover cost of Agricola's Pamphlets on Loan Banks, be paid at an early date from the funds of this Society". Mr. Farquharson entered and took his seat. The future of this Branch came in for a good deal of discussion. All present pledged themselves to support it. Mr. McBean who won one of the prizes in the recent competition in this Parish, was congratulated on his success. The Secretary was asked to lay on the table at the next meeting, all letters or communications from Messrs. Haddon & Company or any Merchant or Dealer in Agricultural Products. Next meeting will be on the 12th May. Note.—The weather is quite unsettled. Wind, rain, and sun at irregular intervals. Yams are scarce. Many are contemplating leaving for the Canal Zone.—S. A. BANTON, Hon. Sec.

PORUS.—A meeting of this Branch was held in the Church School-house at 7 p.m. on Monday, April 2nd. There were present: the President, H. S. Braham; Vice-President, Revd W. B. Esson; R. S. Munroe, Treasurer; Jno. Campbell, Alexander Thomas, Samuel Price, Alexander McCordle, W. A. Morgan, Wm Steele, Maurice Daly, Thos. Morgan, Frank Newman, Hubert Mcpherson, Chas. Rowland, Assistant Secretary, and A. S. Rose, Secretary. We were also favoured with the presence of Mr. J. T. Palache, who demonstrated at Mr. Newman's field on the pruning of coffee and cocoa, at three o'clock of the same day, and delivered a lecture on agriculture generally, at the conclusion of our meeting. There were several subjects discussed at this meeting, and which we believe, if put in working order, will prove to be of much usefulness both to the members of our Branch as well as to the general public. One or two of the most important were the establishment of a model ground where practical agriculture could be thought, and having a weekly fair in connection with the Branch where live stock might be bought or exchanged. After a lengthy discussion on these and other subjects, the meeting at 9.30 was declared adjourned until the first Monday in May.—A. S. ROSE, Sec.

CLARKSONVILLE.—The sixth annual meeting of this Branch was held in the Eccleston Schoolroom on the 5th April, at 7.30 p.m. Present: Revd. W. Head, (President), in the chair, Messrs. S. J. Knight, J. S. Black, A. Wesley Phillips, S. H. Helwig, S. Jarrett, J. G. Bennett, Amos Lawrence, Mrs. Head, Miss Pinnock, and the Secretary. The minutes of the last meeting were read and confirmed, and the minutes of the Managing Committee read and adopted. The annual report was then read and adopted. The following is taken from the report:—"At one of the members' meetings, Revd. E. Arnett, the Agricultural Instructor for the parish attended and gave an interesting lecture on Cocoa Cultivation. At the same meeting Mr. Hirst, Instructor for Upper Clarendon, also gave valuable hints on the curing of cocoa. At the request of the Managing Committee, Mrs. Head and Miss Barker, members of the Society, visited the Eccleston and Clarksonville schools, and besides giving the children valuable hints on the cultivation of flowers, kindly showed them how cuttings should be planted in boxes or pots. A competition in potato cultivation was started by the Society and resulted in Messrs. J. G. Bennett and J. S. Black obtaining 1st and 2nd prizes respectively. The financial position of the Society is on the side of solvency as will be seen from the Treasurer's report." The officers and members of the Managing Committee were thanked for their work in the interest of the Society; and the following elections were made:—Revd. W. Head, President and Treasurer, Revd. A. Cresser, Vice-President, S. E. Hall, Vice-President and Secretary. The prizes for the potato competition—two agricultural forks—were given to the winners, who explained the methods by which they had succeeded. After a useful discussion thus opened, the meeting adjourned.—S. E. HALL, Sec.

N. E. CLARENDON—The first annual meeting of this Society was held at Stagy Ville, on Monday, April 2nd David Hanna, Esq., J.P., President, in the Chair. The Secretary's report showed that there had been seven meetings during the year, and that visits had been paid to the Society by Messrs. Cradwick and Hirst, Travelling Instructors, whose remarks on improved methods of cultivation had been much appreciated, and had been productive of benefit, attention now being given in the district to forking and trenching the land. Thirty-five names had been enrolled in the year, but two members had left the island, and six new names have been given for membership to commence with the new year. One of the members of this Branch, Mr. J. Taylor, won the 4th prize in class I. of the Prize Holdings Competition, and was the recipient of warm congratulations from the members present, and an extra award of £1 made by the President of the Society as an appreciation of the creditable position taken by Mr. Taylor in the competition, as only four marks were needed to have placed him in the first position. The success of the competitions in Clarendon cannot fail to be productive of great benefit among the small settler classes. During the year a supply of seeds was bought and distributed among the members. The Society has made representations to the Government and the Parochial Board as to the improvement of the roads in the district, and at this meeting the following resolutions were unanimously carried:—*Re* Post Office and Telegraphic Station. Resolved:—"That in view of the importance of rapid and prompt communication between shipping points and banana growing districts, and the lack of such communication in the central portion of the island, and especially in the locality where this Society operates; the attention of the Government be drawn to the matter, and a request be made that facilities for Telegraphic and Telephonic communication be provided at a Post Office to be located at Far Enough, which is a central point in a very large district in which fruit is grown, and which is now without such facilities." *Re* Market. Resolved:—"That the members of the Parochial Board, be requested, before deciding on the expenditure of money on a Public Market in the North-East corner of the Parish, to consider if it would not be more advantageous in the public interest to have a market located at Far Enough, at the junction of the roads, where it would serve a very large district, and where it is probable a site may be obtained free of cost, or for a nominal sum for such purpose." The location suggested is on the border of St. Ann, and as there is a great demand in St. Ann for provisions, the inhabitants of Eight-mile, Brandon Hill, Colonels Ridge, Red Hills, Bull Head, Roden Hall, Sandy River, Rexford, and Garberby districts would find it a convenient point to go to to dispose of their produce. The officers of the Society were unanimously re-elected, and are as follows:—President, D. Hanna, Esq., J.P.; Vice-Presidents, F. H. Butcher, Esq., J.P., and Rev. Geo. Turner; Secretary and Treasurer, W. B. Hannan, Esq. Board of Management, the Officers, and Messrs. A. McDonald, J. B. Rose, John Rose, Benjamin Thomas, Edward Watt and T. J. Forbes. A vote of thanks was given to the President for his generous addition of £1 to the prize awarded to Mr. Taylor, and one also to the Officers for their work during the past year.—W.B. HANNAN, Sec. and Treas.

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MOCHO AND BRIXTON HILL—This Branch met in the Brixton Hill school-room on 6th April Rev. O. H. Baker, President. The minutes of meeting held on the 9th March, were read and confirmed. The Treasurer presented his report which was accepted as correct. Messrs. James M. Dyer, and Timothy Giffillan were duly elected members of the Society. Mr. J. G. A. Thomas was elected Vice-President in the room of Mr. H. M. F. Robertson, resigned. The meeting then discussed plans for the holding of a show of horses, mules and donkeys, to be held on Empire Day, May 24th next. It was decided to give prizes for brood mares, saddle horses, yearlings, saddle mules, dray mules, proof asses, working donkeys and jennies. The prizes to be awarded amount to about nine pounds. The greater part of this is to be raised locally. It was decided to ask the S. P. A. J. for financial help. The members present subscribed twenty-four shillings. The final arrangements were left in the hands of the Managing Committee of the Society. The meeting was adjourned to the second Friday in May.—J. AUG. RHODEN, Sec., Mocho P.O.

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CENTRAL CORNWALL.—The yearly meeting in connection with this Branch came off on Friday, 6th April, 1906, at Mount Reese. Revd. J. Duff, presiding. The minutes of the last quarterly meeting were read and confirmed. Revd. E. Arnett was introduced to the meeting and the privilege of speaking in the meeting was given him. Many important subjects in connection with agriculture were discussed with much interest. The trade mark for the Branch is registered and is available to members who are desirous of exporting agricultural products. It is decided that "Togo," the boar for the Branch, be sent to Chester Castle for a few months as its services are greatly needed there. Mr. Wm Doeman will have him in charge. The next competition in connection with the Branch will come off on Friday, the 13th Jul., at Retrieve. £2 5s. will be distributed as prizes. The things to be exhibited are :—Breadfruits, 2 ; corn, 6 ; collection of vegetables ; collection of fruits ; cured cocoa, 1 quart ; cocoa pods, 6 ; coconuts, 3 ; honey, 1 bottle ; wax, 2lbs ; 1 bunch plantains ; cocones, 6 ; negro yams, 2 ; white yams, 2 ; baddo, 3 ; a bouquet of flowers. There will be three prizes in each class, 1st, 2nd, and 3rd, at 1s. 6d. ; 1s. ; 6d. ; each. Competition is open to members of the Branch only. The elected officers for the year are as follows :—President, Revd. J. Duff ; Vice-Presidents, Messrs. W. Cradwick, J. H. Oliphant, Joseph Henderson. Managing Committee, Revd. C. G. McGregor, Messrs. James Little, W. T. Atkinson, C. Muschett, R. Kentish, T. F. Sinclair, P. J. Innerarity, L. K. McKinley. G. C. Muschett, Secretary, Mr. E. S. Jarrett. Assistant Secretaries, Messrs. H. A. Stephenson, P. J. Innerarity. Treasurer, Mr. J. Henderson. On the motion of Mr. Cradwick seconded by Mr. T. Atkinson, it is decided to hold monthly meetings in connection with the Society. The following will show the place and tell the time when meetings will be held throughout the year :—Retrieve, 1st June and 13th July, Chester Castle, 18th August, Montpelier, 17th September, Cambridge, 5th October, Ginger Hill, 2nd November, Blakarsth, 7th December.—E. S. JARRETT, Sec.

MANCHIONEAL.—The annual meeting of this Branch was held on Saturday 17th March, 1906. H. Buckley, Esq., Vice-President, presided. The Secretary said he noted with regret that there has been a falling off of membership, he also regretted that he could not give a very bright report of the Branch, but he had pleasure in stating that the financial position was good as would be seen from the Treasurer's report. The Treasurer presented his report, the balance sheet showing £8 2d. to the credit of the Branch. The Officers of the Society were, on the motion of Mr. P. H. Thomson, seconded by Mr. Drysdale, re-elected *en bloc*. The following members were elected to manage the affairs of the Branch along with the Officers, Messrs P. H. Thomson, Bowen, Jacobs, C. O. Neufville, Coosse, Gray, Berry, Price, Drysdale, Stewart, McPherson and Leslie. Mr. Buckley said that as the Branch had some money in hand, it would be well if a good boar or some other animal within our means, be got for the purpose of improving the breeds in the district. This suggestion was taken up warmly, and after some discussion, it was agreed that the Secretary find out from the Parent Society the terms on which stock were sent to the butchers. Mr. Nathan Scott gave notice that at the next meeting he would speak on various subjects which he thinks are of importance to the Branch. Various topics were touched lightly, the mongoose as a pest to poultry-rearing being strongest ; experiences of their ravages were given, and several members gave advice as to the means of keeping them from the chickens if they cannot be wholly destroyed. The Secretary said he had heard of an instance where, when the mongoose were caught, they were fed to the chickens. The members were rather amazed at this. The subject being so wide, the President closed the discussion, and appealed to the members to co-operate and make the Branch a working one. The officers present and members of the Managing Committee promised to do all in their power to keep up the interest of the Society.—S. R. McBRAN, Sec.

St. George's.—The regular Committee Meeting of this Branch was held on April 14th, in the Court-room, Buff Bay. J. W. Hill, Esq., presiding. Minutes of last meeting being read and confirmed, the committee devoted much time to matters affecting the proposed Show, on the 1st August, 1906. The Secretary was instructed to write and ask several distinguished gentlemen to become

patrons. A committee was appointed, consisting of influential gentlemen, to collect funds, and to interest themselves to ensure success to the Show. "Woodstock Ground" presents a good appearance for Show purposes, and our committee are fortunate that its present owner does all he can to promote the agricultural and other interests of the people in these parts. Already we have his permission to the free use of the Commons for our Show. Certificates have been issued by the Secretary of the Jamaica Agricultural Society to winners in the Prize Holdings Competition and registered letters have been passing into their hands as the results of their improved holdings under certain conditions. —W. J. THOMPSON, Hon. Sec.

SPRINGFIELD.—The executive meeting of this Society came off at Kensington, on the 20th March, 1906. It was agreed that Mr. Irving occupy the chair as the President was unable to attend. The minutes of last meeting were read and confirmed. As none of the Presidents were in attendance, it was agreed that the Penny Bank discussion remain for another time. A letter from Mr. Geo. Heron was read. Moved by Mr. W. T. Reid, seconded by Mr. B. B. Morris, and agreed, that the Secretary write at once to engage one of Mr. Heron's pigs. A letter from the Revd. M. C. Surgeon was read, stating that he was sorry that his distance away would not allow him to become one of the Vice-Presidents of the Society as per request. Agreed that this matter stand over for next meeting. It was moved by Mr. W. T. Reid, seconded by Mr. A. J. McLaughlan and agreed, that Mr. P. H. Tharpe be appointed Assistant Secretary. A letter from the Dee Side Branch *re* Agricultural Show, as well as rules from a pamphlet connected with the said Show were read. Agreed that the Secretary write to express that the shortness of time prevents this Branch taking an active step in the matter. To help those who are labouring to secure in future the proper reputation of the Island's produce, it was moved by Mr. J. Jacob Irving, seconded by Mr. D. Adolphus Smart and carried, "That this Society support the statements made in the "Gleaner" of the 23rd March by the Hon. Arthur Levy and Messrs. J. T. Palache and R. B. Braham, that the two shillings license be abolished." (2) That produce be bought at suitable depots by responsible persons. There was a strong feeling that if runners be allowed at any cost of license, for many reasons, the proper end toward the curing of produce wont be reached. It was therefore agreed that no runner should be allowed a license. Agreed that a dozen pamphlets on the Crystal Palace Exhibition as advertised in the March Journal be ordered by the Secretary. A vote of thanks was given to the Acting Chairman. With this the meeting adjourned.—D. ADOLPHUS SMART, Sec.

FAIRFIELD.—I am glad to report to you that consequent upon a visit lately (23rd inst,) from Mr. Palache, Travelling Instructor for Manchester, this Branch which was on the verge of dying has again been revived, and will, it appears, gather new life during 1906. A very lively and instructive meeting took place here last week, when there were present about 100 school children and a goodly number of adults. The chief subject which engaged the attention of the meeting was the milk and butter-making industry, and the lecturer endeavoured to impress upon the meeting the amount which would be saved in the island if butter-making was carried on successfully as it had started at Barossa. The rearing of pigs for bacon purposes was also touched upon, as well as the rearing of fowls for the production of meat and eggs. The lecturer also spoke on the decline of the coffee industry, and urged upon those present, the advisability of giving more time and attention to the cultivation of coffee. All present felt that a profitable afternoon had been spent, and a few persons came forward to have their names enrolled as members.—H. E. WRIGHT.

RIO MINO.—The monthly meeting in connection with this Branch was held here on Friday, April 6th, at 7 p.m. A. Harvey Davis, Esq., in the chair. Mr. U. T. McKay gave an address on the Tenancy System of Jamaica. He urged that whilst the government was keen on teaching the principles of agriculture they must also see that something is done towards checking the wanton destruction of lands, which is being carried on to a great extent throughout

Jamaica He showed that (1) virgin land was being made unproductive ; (2) the country was being deforested, thus disturbing the rainfall. This affects the whole island. The landlord was affected because (1) his land depreciated in value, (2) it is difficult to collect rents, (3) it is expensive to collect rents. This was brought about because the tenant has no interest in the land as he cultivates only annual crops. There was the possibility of his being turned off the land at any time after a notice extending from three to twelve months. This element of uncertainty prevents his having any staple crops. 2.—Make it difficult for him to meet his rent from merely annual crops. 3.—Make him lead hand-to-month existence. The cure was (1) encouraging the peasants to cultivate their own plots (2) A compensation law. (3) The continuance of the Prize Holdings Scheme, extending its usefulness when funds will allow. Mr. Hirst followed with a timely address, showing that it was a question which must be settled sooner or later. The evil lies at the root of the annual tenancy. There should be a lease of five or ten years. The deforestation of the land was a serious matter, as it causes the rainfall to be irregular and brings about floods and landslips which lead to serious losses. A compensation law would bind the landlord as well as the tenant, for the tenant would have to give up the land in the same state of fertility as he got it. The President made some remarks, agreeing that the system was not the best one for the country, as the State, the landlord and the tenant suffered. The Society then agreed to the holding of a Local Show in August. A large and influential committee of gentlemen was appointed to serve, and the next meeting comes off on the 27th inst. at 4.30 p.m. when the prize lists and collecting of subscriptions and other matters will be gone into. The regular monthly meeting comes off on the 11th proximo at 5 p.m.—U. THEO. MCKAY, Sec.

CITRIC ACID.

CITRIC ACID is now being largely used in the grape industry to cure or prevent a certain form of disease of wine which the French call 'La Casse.' Its efficacy in this respect and the complete absence of injurious effects in the wine stated, suggest its use in the acidification of deficient musk before fermentation in place of Tartaric Acid. It has been found efficacious and from most points of view superior to Tartaric Acid. Moreover, while it is necessary to add 6lbs. of Tartaric Acid to a ton of grapes, from two to three pounds of Citric Acid are found equally effective. Citric Acid is now largely made in California from the refuse of cull lemons. It is also made from limes in the West Indies, and it would seem that this new use for it in connection with such a large industry as the making of wines, should cause an increasing demand. There is room here for more enterprise in the growing of limes systematically. Nearly all our present exports of citric acid and lime juice are the products of wild trees only.

CORRESPONDENCE.

SIR,—I see a letter in the March Journal from Mr. Watson re Sweet Peas. I have some flowering at present from seed I got from C. O. Cody.
Chudleigh, Christiansa P.O., 28th March, 1906. Yours truly, W. V. HERON.

SHOWS TO BE HELD.

THE following Shows are arranged :—

St. Mary, Port Maria, 5th July.

St Ann, Brown's Town, 1st August.

Hauover, Lucea, 1st August.

St George, Buff Bay, 1st August.

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BOARD OF MANAGEMENT.

ON account of the Special Meeting of the Board of Management held on 10th May, and there being no business of pressing importance, the usual monthly meeting of the Board was not held on Thursday, 17th May.

The next meeting of the Board falls on Thursday, 21st June, at 11.30 a.m., and at 12.30 p.m. on the same day, the Half-Yearly General Meeting of members of the Society will be held.

HURRICANE INSURANCE.

A Special Meeting of the Board of Management was held on Thursday, 10th May, at 2 p.m., to meet Mr. Head, Insurance Broker, London, relative to the matter of Hurricane Insurance. Present :—Hon. W. Fawcett, in the Chair, Hons. H. Clarence Bourne and L. J. Bertram, Messrs. D. Campbell, R. Craig, R. B. Hotchkin, E. W. Muirhead, and the Secretary, and also Members of the Merchants Exchange, Mr. Ashenheim and Mr. Branday.

The Chairman after pointing out that it was an unfortunate day to hold such a meeting—many interested gentlemen having to attend to their foreign correspondence—suggested that Mr. Head, who had travelled throughout the various islands, should make a statement which could be published in the papers, and if necessary, they could call another meeting.

MR. HEAD handed to those present, copies of the circular on the insurance against damage by storms and hurricanes, issued by his firm Henry Head & Co., Limited, London, and stated that since the circular had been issued, the terms of the proposed insurance had been somewhat altered. The object of his visit was to find out what the planters wanted, and to try and arrange to meet their wishes. Jamaica was largely interested in bananas, but he was sorry to say he had no prospects of insuring their crops.

As regards coconuts, the hurricane of 1903 did serious damage to coconut plantations in some places, the loss being 75 per cent. What he wanted particularly to find out was the damage done to coconuts in 1880, which in some respects, was a more serious hurricane than that of 1903.

He would like to know whether planters would favour an insurance per tree, and what they would consider a fair valuation of each tree. His firm wanted to avoid all disputes when a claim was sent in, and so would arrange for assessors to go over estates with the owners. Complications were more likely to arise if the insurance was valued per acre, and so he thought the best plan was to insure on the value of each tree. He would be glad if the Society would go into the matter and help him to arrive at a definite value of each tree,—a value that would be considered fair on all sides.

There was a difficulty in insuring crops, viz., that the crop was of a varying quality. The crop might be reduced from one cause or another in any year to the extent of 50 per cent., and if a hurricane came on in one year the underwriters might be asked to pay for the loss of a full crop, the result of which would be to put planters in a much better position than if they had had no hurricane at all. They would probably propose to take the average yield per tree and insure this.

He understood that on coconuts 2s. might be fixed as the annual average value, taking good and bad times together.

The next crop was cocoa. In the other islands, it had been arranged to insure cocoa at a value of 5s. per tree. The annual crop he understood would average 8d. per annum, and his firm was prepared to insure on this valuation in the other islands, but in Jamaica cocoa being generally planted through bananas there was additional risk. They had quoted 30s. per cent., per tree in the other islands, plus an excess of 5 per cent., which meant that planters would be their own insurers to the extent of 5 per cent. Cocoa planters in the other islands objected to this excess. They said they wanted their claims paid in full and so his firm agreed to insure the crop at the rate of 35 per cent., and to pay all the claims in full,—if there was no claim due during the year the 5 per cent. would be returned to the insured.

He understood that a good many considered that there would be trouble in defining what was a hurricane, and what was a storm, but there would be no difficulty at all on that score, as insurance would be paid on the damage done by wind.

They quoted rates on crops only on condition that buildings were also insured. If they were to insure cultivation and crops alone, the rates would be considerably higher. It was a very common thing for a hurricane to be of sufficient strength to destroy crops, but not to do serious damage to buildings, and therefore underwriters aimed at spreading the risk over buildings and crops. If, however, planters desire to insure their buildings alone, his firm would be glad to do so at a considerable reduction of premium. The ordinary rate was 20s. per cent., but in the case of good stone buildings this would be considerably less.

As regards oranges he did not think there would be any business done in that line.

Pimento trees, he understood, grew practically wild and very few knew exactly how many bearing trees they had, but he hoped if he could obtain statistics, to arrive at some definite understanding as regards pimento.

Dealing with coffee, Mr. Head said that unfortunately, this was one of the crops that was very easily damaged although the tree itself was hardy. The hurricane of 1903 did not seriously injure the Blue Mountain coffee trees, but the damage done to the crop was serious. He was confronted with the difficulty of the valuation of coffee crops. What he thought might be done would be to take the average product of the estate for the past ten years, deduct 10 per cent. from this and so arrive at the actual annual value of the crop. He could not at the present moment definitely say what premium might be fixed. He had arranged to take risks from two estates in the Blue Mountain districts.

Having dealt with the insurance of the chief products of the island he proceeded to tell them something about the firm he represented. Head & Co. were primarily a firm of Insurance Brokers, i.e., they took risks round to underwriters at Lloyds and got them underwritten. Hurricane Insurance was practically a new business, consequently there was some difficulty in placing risks, but they had succeeded in getting prominent firms interested, and if the scheme was well supported by planters there would be no difficulty in a year or two in placing such risks.

Mr. Head said he was going on to Cuba and Porto Rico but he hoped to return to Jamaica later.

PLANTING by the moon is no longer practised by intelligent and well informed farmers and fruit growers. Study your soil and be governed by experiences. Do not depend upon signs of the moon for planting, pruning and harvesting.

FOREIGN BIRDS.

As many people in Jamaica are asking for information about, and for instruction, how to turn down tick, and insect-eating birds, I send you the desired information.

Starlings can be had in England, in any number, during the winter (they are on the protected list). They are very cheap, and are caught in large numbers, for gun clubs. On arrival in Jamaica the survivors, (three-fourths usually die) will be found very dirty, Turn them into a verandah, or other large place, secured with wire netting, free from rats, then place several shallow vessels, soup plates will do, full of clean water, the birds will at once bathe, as soon as the water becomes the least dirty, it must be changed as the birds will not bathe in dirty water. Each bird will bathe about four times a day. A good deal of bread, soaked in fresh milk—it must on no account be sour—must be given to them. They have great appetites, and are hungry every three or four hours. In from three to seven days, the greater part of the birds will be clean and glossy, they are then fit for turning down. Should there be two dozens, turn out half about 8 or 9 a.m., having damped each bird just enough to prevent his flying straight away (there must be no cats about); when he has preened himself and become dry he will be hungry; have bread and milk placed ready where he can see it. The birds will remain about the place for many weeks, and will try to get back into the place where the others are confined. After a few days all should be released. Before the hurricane in 1903. I had a number which used to return at nights and roost in a wired off verandah; fortunately for them, the night of the hurricane, they roosted in the verandah, so did a number of Java Sparrows, consequently only one died. As soon as released Starlings become dry, they fly to the nearest trees, and should there be wild pines on them, they will at once hunt for insects, then all will fly on the ground. Should there be any cattle with ticks, they will soon have them off. They eat insects, ticks, grubs, beetles, cockroaches, scorpions, etc., etc.

Magpies are not so plentiful in England, but are fairly so in Ireland. He is a large bird, with an appetite, the Starling is a good tick bird, but he is not in it with a Magpie. At first cattle are frightened when so large a bird flies on them, but soon become used to it, and enjoy being ticked. When a Magpie has finished with a steer, not many ticks will be found. Should food (bread soaked in milk) be placed where he can get it he will never leave, but will nest, and remain permanently where he is turned out. They should be treated on arrival the same as Starlings, they are not, however, so keen on bathing; they should be turned out in the same manner as Starlings. The Magpie is a large bird and builds a large nest. Should there be any coolies about, they are apt to

rob the nest, and eat the young birds. A word from the *Protector of Immigrants will stop that.*

Ox-eye-tits are good insect-eating birds, but do not eat ticks, they hunt insects on trees.

Chaffinches are good insect-eaters, but they hunt mostly on the ground, they should be regularly fed on canary seed, they will never leave the premises. In importing these, one must be careful to order an equal number of cocks and hens, otherwise one might get either all cocks, or all hens, according to the time, when trapped. Mr. Chas. Harris, Naturalist, 15, Clayton Street, Newcastle-on-Tyne, supplies any bird, or animal, from a mouse to an elephant. He is the cheapest man I know, square and obliging. He generally charges one pound five shillings for one hundred Starlings, Magpies from 2s. 6d. to 3s. 6d. each and these should not die on board, ninety-eight per cent. should arrive. Chaffinches cost one pound five shillings a hundred, very few die on board, being hardy. Ox-eye-tits cost from sixpence to ninepence each, and are fairly hardy.

Cock Robin, those who admire this bird, can bring him out without trouble; he is cheap and hardy, eats insects on the ground, but as he usually nests in a hole in a bank, he is apt to fall a prey to mongoose. The tody (Jamaica Robin) nests in a hole too, and is holding his own against mongoose.

Sir Alfred Jones is interested in the introduction of birds, and I have no doubt, should you approach him, he will fetch out Starlings and Magpies, and perhaps other birds free. Some years ago Sir Alfred intended to have introduced, and turned out ten thousand Starlings. This year he sent me seventy-two, as a present, but in consequence of gross neglect all died. I fancy some one will hear something about that. One must never fail to promise (and fulfil) the butcher a tip of ten shillings, should a proper proportion of birds be landed in fair order. Hill, butcher on the "Port Kingston," is a bird fancier, and brings bird out in good order.

Freight usually costs me more than the birds. In turning out (or down) birds, it is best to turn out a good number on one spot, say from twenty-five to fifty or a hundred Starlings, from six to twenty Magpies, from twenty to fifty Chaffinches, from twelve to twenty-five Ox-eye-tits. The Myhah (or Minah) is an Indian Starling, and is a good insect and tick-eating bird. He can be brought over in coolie ships.

R. J. TAYLOR-DOMVILLE.

In some parts of Germany Starlings are great favourites, and are kept like pigeons in dovecotes.—R. J. T. D.

(This is done in Scotland also, we ourselves always kept "Starling boxes" as they are called there.—Ed.)

(The Agricultural Society at the request of the Government considered the matter of the introduction of foreign birds, and

came to the conclusion that from the sad experience of other countries, the possible feeding habits that coming generations of these birds might adopt here, were more momentous than any good they might probably do, and the Government were advised accordingly. At the same time the experiment is to us, who are fond of birds, very interesting, and we are glad that it has been made, but only we must take care to profit by experience. We should therefore advise Mr. Domville not to go any further with his experiments just now, but wait to see how these birds will continue to behave and how their young will adapt themselves to the country. —ED.)

T I C K S.

Born male and female ticks are to be found on sheep and cattle. The male is smaller than the female; this is especially noticeable after the female has taken a full meal of blood and has become swollen with numerous eggs, when her body assumes an enormous size, the skin being leathery in texture. The mouth of the tick is provided with two pairs of barbed piercers, which penetrate through the skin of the sheep, and enable the tick to suck blood. If the tick is violently removed the piercers are usually left behind. The male tick also uses this piercing beak in the act of pairing, and female ticks are often found on animals with males clinging beneath them. The female finally drops to the ground and there lays over 2,000 eggs among the herbage. After about eight weeks the little six-legged young are hatched from the eggs.

They wait for the opportunity of attaching themselves to a sheep or other passing animal, and after feeding for two or three days, fall to the ground again. Then they cast their skin and become eight-legged "nymphs." In this stage they again wait for a chance of blood-sucking; then after another few days' residence on a beast, they drop off, change the skin, and become fully grown.

Once more they now wait for a passing animal from which they can suck blood, and on which they live for some time, the female becoming greatly swollen as explained above. In their various stages, the ticks are able to live for a long time (six months to a year) without taking food, and their growth depends upon their finding in each stage a "host" animal from which they can suck blood.

In addition to the irritation and loss of blood caused by ticks, they convey, in many cases, minute parasites from the blood of diseased to the blood of healthy animals, and thus spread most serious illnesses (such as Texas fever and red water in cattle). It has been shown that in some diseases a female tick may suck blood from an infected beast, and her young, in their early stage, convey the infection to a healthy animal. And as the parasites remain in the blood of animals after they have recovered from the disease, the risk of infection is very serious.

The presence of so many ticks in our pastures where they are not only constant torment to our cattle and horses, but prevent our visitors from leaving roads and taking what would make pleasant strolls. If we desire to have our pastures free of torture to ourselves and our live stock, and to have Jamaica remain an attraction to tourists, then we must give the ticks no chance to increase, but have our stock carefully and regularly ticked and washed. If ticks are never permitted to lodge on an animal long enough for them to grow and get fertilised and drop off, then in time we shall get rid of them. Ticks are a source of boundless annoyance and irritation to man and beast. Most of the large penkeepers tick their cattle regularly, but we regret to note how very few of those who keep a few head of cattle stock ever trouble to take off the ticks. The small settlers who have only one or two head of cows are the greatest sinners in this respect, and yet they have most time on their hands to enable them to attend to the ticking of their cows. They have usually plenty of children who can do this work, and they do not need to spend money on the various tick washes to be bought in stores, though these are more effective than what they can prepare themselves. Better to use home-made preparations than use none at all. We are trying to find a simple and cheap preparation that will be fairly effective to keep off ticks, from materials which every settler can have at hand. At present we have seen used, a mixture of banana juice (from the stem of a banana after the bunch has been cut), sour orange juice, half-and-half, enough to make a gallon of liquid, to which a pint of kerosene is added, and this quantity will thoroughly wash four cows. The kerosene kills the ticks, the sour orange juice is sticky and helps to hold the kerosene and makes it keep its effects. The banana juice is astringent and is supposed to have a good effect on hair and skin.

STOCK NOTES.

MILK.—Any phenomenal traits, but more especially milk, appear to be obtained far more through the bull than the cow, hence so many of our short pedigreed or non-pedigreed cows and heifers are daily proving better dairy cattle than those of long standing pedigree. There is undoubtedly in the case of heavy milkers a tendency to weaken the constitution of the cow, both as regards health and also as regards the ability to impress the offspring. These cows it is quite possible, indeed, it appears to be the case, give more effect to their male offspring than to the female, as bulls from such animals quite as a rule beget much better milkers than the bulls from cows of light milking properties.

MILK FLOW IN COWS.—UNTIL a cow is fully grown, it is obvious that the food she eats must in part be utilised for building up the frame; hence the full milk yield cannot be expected until the animal reaches full size. After the third or fourth lactation periods this growth is complete, so that from that period onwards the milk pro-

duce should be at its greatest. Young animals certainly give richer milk than old ones, but the greatest returns are obtained during the ages of five to eight years. After that period the milk flow becomes less, and it becomes increasingly difficult to fatten the animals off.

IMPORTANCE OF BULKY FOOD TO GOATS.—Apart from its breeding, nothing influences a kid so much for good or ill as regards its value as a future milker, as does its rearing and feeding. The aim must be throughout to keep the kid in a healthy condition, inducing it to form bone rather than flesh and fat. At the same time, all food should be as bulky as possible, with a view to widening the digestive organs to their fullest extent, so as to enable the future milch goat to deal satisfactorily with large quantities of food. Some people with especially good goats feed kids with corn and cornmeal. A little is good for them, but too large a proportion does harm and often kills them. Give green stuff in abundance and very little corn or cornmeal to push the kid on.

SEDIMENT IN MILK.—The milk that shews a sediment in the bottom of the can, never come from a dairy where cleanly methods are practised, and the butter that leaks milk never passed through the hands of an adept in the art.

EXPERIENCE IN DAIRYING.—If experience in dairying does not make a man or woman wise, it counts for but little. We often see cases where people grown gray in the care of the cows realise only meagre profits from the business. This is because years ago they decided that they had mastered all there was to be known relative to the business, and have since never tried to get out of the rut.

PARASITES.—A penkeeper who is also a medical man, is of opinion that the parasite *Strongylus* has caused a great deal of sickness and deaths among cattle never located to any particular cause. We should like penkeepers who have cattle dying from any obscure causes to seek for the parasite *Strongylus* in the fourth stomach, immediately after death. If they find them they are to give all stock showing the same symptom of sickness, the following treatment :— For a calf up to 1 year a dessertspoonful of turpentine in 2 oz. of castor oil (that is four ordinary tablespoonsful), for older cattle 2 to 3 ounces of turpentine in half pint of castor oil, and do this before they get too anaemic and note results and report to us. An ordinary tablespoonful contains a half ounce of the turpentine or the oil. In the Journal for January 1903, an experience of two teaspoonsful of Stockholm Tar given to a sheep for this trouble, described this dose as effective.

THE government (of the state of Rio de Janeiro) has decreed a prize of 30,000 milreis, for anyone who exhibits 100,000 manicoba rubber trees within 18 months from now, and three other prizes of 15,000 milreis, 10,000 milreis, and 5,000 milreis, for the three next largest plantations, the smallest of which in order to gain a prize must not be of less than 20,000 trees.

MILK MUST SUPPLEMENT THE LOSS ON BEEF.

AT a recent meeting of the Board of Management of the Jamaica Agricultural Society, the deplorable condition of the Penkeeping Industry was brought to their attention, by a member, who stated that the middle-man "was wiping out the producers, because they lived in a land where co-operation seemed to be altogether impossible." This middle-man, who was said to be "the curse of everything in Jamaica," is, it appears, growing rich by buying beef from the producers, and supplying it to the Government Institutions considerably below the cost of production. The suggested remedy is, that the penkeepers should organize themselves to move the Government to tax the middle-man out of existence! I will not anticipate the answer of the Government if applied to, but it is evident that if the middle-man owes his existence to the patronage of the penkeepers, they and not the Government should arrange for his destruction. "It is an ill wind that blows no good," and I am one of those who think that the downfall of beef-production as now conducted on pens in Jamaica, would prove a blessing in disguise, and be the means of directing the attention of the penkeepers to milk-production in conjunction with beef-raising. As long as the penkeeper can make enough by beef-raising, he apparently has no desire to make more by embarking in a new industry, but in time necessity may force him into it, and then he will have to educate himself in the advantages of co-operation, by which means only he can turn his milk product to profitable account.

The main source of income to the penkeepers, about £120,000, is derived from the 15,000 head of cattle annually slaughtered, but there is no reason why this should not be supplemented by turning to account the milk productive qualities of their herds. Our annual imports of condensed milk and butter, represent approximately, the product of $2\frac{1}{2}$ million gallons of raw milk:

850,000lb. of butter	...	...	2,000,000 gallons.
47,000 cases condensed milk	...		500,000 gallons.
			<hr/>
			2,500,000 gallons

In Jamaica we have not less than 25,000 breeding cows, and if each cow yielded 100 gallons a year (about one quart a day) the supply of milk represented in our imported milk products could be provided. Such a supply calculated at 10d. per gallon would return over £100,000 per annum to the penkeepers, or almost as much as their present income from slaughtered cattle.

These facts and figures show what is possible, and it is for the penkeepers to decide what portion, if any, of this untouched source of income they will appropriate. No penkeeper will deny, that he could, if he wished, avail himself of this untouched source of income, by selecting from his herd at least 25 per cent. of his cows, capable of yielding 100 gallons or more a year each in addition to raising

their calves. I believe (and I am supported in this opinion by many penkeepers) that with the development of milk-production, the beef-raising industry will also benefit, as the additional care and attention the calves will receive, if the mothers are milked, will materially assist in reducing the heavy mortality among young stock, which on the estimate of an experienced penkeeper, is placed at 20 per cent. Two years and a-half have elapsed since I first commenced to contribute articles to the *Agricultural Journal* in favour of dairying, and if progress in that direction has been slow it has been considerable; to-day, thanks to the enterprise of Mr. L. Kerr, we have a creamery established in Manchester, which is an object lesson to all, not only in the process of manufacture, but in the advantages of co-operation. There is room now in the island for many more of such factories, and it is to be hoped that this example of Mr. Kerr will soon be followed by others.

The following two examples show the progress made in countries where the benefits of co-operation are understood and practised. The Argentine Republic, which 10 years ago could barely supply her own needs, has now an export trade in butter of over 5,000 tons per annum, and New Zealand which now exports annually £8 value in butter per head of horned stock, has more than doubled her trade in ten years.

Jamaica, to her shame, records an annual importation of 25 tins of condensed milk per head of horned stock!

I do not agree with those who say, that "we live in a land where co-operation is impossible." Other countries, besides Jamaica, have been slow to recognise the value of co-operation, until the pinch of hard times has forced them into it. Our Penkeepers are not blind to its advantages, but only a little too prosperous to bother with it, and the penkeeping industry is not in so desperate a condition as to require Government protection so long as it can fall back on milk to supplement the loss on beef.

A. H. PINNOCK.

Lyndhurst, Camp P.O.

PRODUCTION AND CONSUMPTION OF COCOA.

THE world's cocoa crop increased from 125,895 tons in 1903 to 146,552 tons in 1904. The greatest increase in the countries of production, being Ecuador, Brazil, Trinidad, San Domingo, Venezuela and the Gold Coast, but Cuba, Porto Rico, Ceylon and Hayti also made steady increase. Jamaica was stationary, the hurricane in 1903 accounting for that. As a matter of fact, our neighbour San Domingo, is the fifth largest exporting country in the world. The world's consumption of cocoa was 121,471 tons in 1903 and 138,864 in 1904, the most important increase in consumption occurring in Germany, viz:—26 per cent., while among the other most important users, the United Kingdom increased 17½ per cent., and the United States 16½ per cent. Among the small consumers Austria-Hungary consumed 24½ per cent., and Switzerland 17 per cent. The United

States consumed most cocoa, followed by Germany, France, the United Kingdom, Holland and Switzerland. A report on the cocoa industry says it is to be noticed that the planting of high-grade cocoa is not being carried on to the same extent, as cheaper varieties which may be accounted for by the fact that cocoa is now no longer merely a luxury, but is becoming a considerable article of food, even among the working classes. Hamburg is the leading centre of the cocoa trade having far surpassed Havre and London; the last place is steadily losing ground. Every year manufacturers are getting into more direct communication with the producers abroad, and now a considerable portion of the cocoa which passes through Hamburg, Havre and New York, goes straight to the manufacturers without passing through the hands of any middleman. This condition of things is very much prevalent in London, where cocoa is largely sold at auction, a method which is rarely adopted at the other centres, with the exception of Amsterdam, where about eight auctions of Java cocoa are held annually.

NOTES ON RAISING COCOA PLANTS,

BY W. CRADWICK, Instructor in Agriculture.

(Continued from May "Journal.")

Now take a supply of young plants from the beds, place them on your potting table or bench, which should be in a cool, shady place for your own comfort, as well as that of the young plants, keep the roots of the young plants covered over with some wet paper, or rags, or anything that will hold moisture.

Set your bamboo pot square and level in front of you, near to the heaps of soil, take the plant in the left hand and put it into the pot in such a way that the roots hang down perfectly straight, taking great care to hold it in such a way that the part of the plant which was level with the surface of the soil in the bed, is not more or less than half an inch below the level of the top of the pot.

Keep the left hand perfectly still, resting it on the top of the pot, now take the right hand and fill the pot up to the top with soil. Take the right hand and without lifting the pot from the table, or moving the left hand give it a good shaking, then with both hands raise the pot and thump it on the table two or three times, it will then be found that the soil is sunk down about two inches.

Fill up the pot again with the right hand and without moving the left, then take both right and left hands and using the thumbs only, press the soil down firmly on the far side of the pot.

Reverse the hands and still using only the thumbs, press the soil down firmly on the near side of the pot, then again reverse the hands, using thumbs only, pressing down the soil on the right and left hand sides of the pot.

During these operations the bamboo pot should have remained perfectly still, moving it neither one way nor the other. If this has been done carefully and intelligently, it will be found that the soil

is perfectly firm on the outside of the pot, the plant is in the centre but still loose. Now take the thumb and forefinger of each hand and make the plant firm in the centre of the pot, but the operation should be carried out in such a way that the soil is a little firmer round the side of the pot than it is in the centre; and the ground line of the plant about half an inch below the top of the pot. If a little more soil is needed which it should not be, throw in a little more, make firm with the thumbs, and give the pot a smack on the side, just sufficient to get the surface soil slightly loose. If the plant during these operations has got a little too deep in the pot, do not fill up the pot quite so full. If the plant is more than say three quarters of an inch below the top of the pot, take it out and go over the operation again. If it is less than the half-inch in depth it does not matter much; too deep is fatal, a little too high does not injure the plant, it simply shows that the workman is careless or incompetent. Try and remedy it whichever it is.

As soon as a fair number of plants are potted up, give them a good soaking of water, this will necessitate their being watered over two or three times at first. Lift up a plant here and there and see if the water has soaked through the bottom of the pot, until this is done the plants are not watered properly, and much of the future success of the young plants depends on the first watering being well done. It will be observed that much stress is laid on the details of putting up the young plants, this is done deliberately as in successful growing of cocoa plants, it is the smallest details which matter.

The object of making the soil firm on the outside of the pots is to make sure that the water will soak, first of all the roots of the young plant, and then gradually find its way from the centre to the outside of the earth in the pot. If the soil is firmer in the centre than it is on the outside, as it is very apt to be when the operation is carried out by an incompetent potter, the water is apt to run down the sides of the bamboo pot and out at the bottom without thoroughly wetting the soil. This of course applies to the potting of all plants, not cocoa alone. The young plants being properly potted and thoroughly watered, are now ready to be removed to the quarters which they must take up, until such time as they are ready to be transplanted into the field. They should be stood in what I would call a semi-shaded place, *i.e.*, protected from the direct rays of the sun, and if possible from hot drying winds, but they must not be placed under heavy foliated trees which will keep them dark and cause them to be more delicate than they naturally are. Neither must they be set where the drip from overhanging trees will fall upon them. If they are placed in too dark a place they will be delicate and very liable to suffer when planted out into the fields. If they are exposed to too much sun they are apt to become stunted, very often the growing point will be burnt off, or so damaged, that when the plants are placed out in the field, they will commence to "side sucker" instead of growing at once into fine healthy trees.

If properly taken care of and not allowed to suffer from want of water, the cocoa plants in from ten to twelve weeks from the time of potting up, will be ready to plant out in the field. Care

should be taken after the first month to move all the bamboo pots. It will be sufficient to lift the pots and put them back in the same place, so that in the first place, roots of trees under which they may be standing will not grow up into the bamboo pots, and secondly, the roots of the young cocoa plants get out into the earth on which they are standing. When the young plants are ready for transplanting into the field, holes must be properly prepared ready for their reception. This should be done by forking up a small "potato hill." Care should be taken to make the hill high enough, so that when the soil again settles down the earth line of the young plant is several inches above the level of the surrounding land. Remember always that too deep is fatal. Now be sure that the earth in the bamboo pots is thoroughly soaked with water, to be quite sure, it is best to soak the bamboo pots in a tub or pan of water for about half-an-hour. Then take the bamboo pot, split it at the joint, take the plant in the left hand and with the right, reverse half the bamboo pot, turn it over and reverse the other half. If the plant has been properly cared its roots will hold the earth on a solid ball. Open the potato hill to sufficient depth and width to admit the plant. Drop the plant into the hole, draw the earth round it with the hands and press it tightly round the roots of the plant with the hand, using no implements whatever. If this hurts the hand then the soil has not been properly prepared for the reception of the plant.

Do not get an implement to put the plant into the ground, but seek for one to improve the preparation of the earth for the reception of the plant. If the land and the weather are dry, the young plants must be given a good soaking of water, this provided the ball of earth has been soaked in the way recommended, will keep the young plants from suffering by drought for several days. Its future will now depend on the cultivation and richness of the land, and the proper regulation of the shade in which it is growing. These are the methods which must be adopted for the proper carrying out of this system of planting cocoa. Its advantages are, that the young plant gets three changes of soil, just at the time when plants most need all the help that they can positively get.

The seed is placed into new soil, the plant when transplanted from the seed-bed into the bamboo pot is placed into new soil; and the plant when planted again into the field has the advantages of freshly prepared soil. Other advantages which can by no means be lost sight of are:—

First, the proper selection of the seed when sowing.

Second, the opportunity for re-selection when potting up the young plants from the seed beds.

Third, another opportunity for re-selection when the plants are being put out into the field.

In this way nothing but strong healthy plants would be put out into the field. At any stage of the young plant's growth up to the time of planting out into the field, a weakly plant can be picked

out and thrown away. the importance of this can hardly be over-estimated.

The plants up to the time of setting them out into the field have cost very, very little, and if thrown away at this stage there is practically no loss. The disadvantages of this system are, that work by careless, incompetent, cock-sure workmen, often results in such a large number of poor plants being raised, that anyone with a love for plants is apt to get vexed and throw up the whole process as too troublesome to be carried out.

(To be Continued.)

R A M I E.

THE manufacturing world is still keeping an eye on Ramie, a plant which produces the best of all textile fabrics. Neither cotton, wool nor linen can compare with it, but unfortunately there has always been the difficulty in getting machinery to decorticate and degum it thoroughly and easily to make it ready for the mills. Mrs. Ernest Hart gave a lecture on Ramie to the Society of Arts, London, on Wednesday, 4th April. Under the name of A. H. Hart & Co., she has mills at Bunbeg, Yorkshire, England, where are turned out fabrics which yield to none other in beauty of design and colour. She turns out dress fabrics, tapestries, muslins, upholstery, webb for under-clothing, blue and crimson, with the sheen of silk and the strength of cotton, all woven of Ramie. The Indian Government 10 years ago offered premiums for Ramie cultivation, but as they linked their offer with the condition that a perfect decorticating machine should be found, no one succeeded in earning the prizes which were ultimately withdrawn. With the exception of the material used on the mills under notice, where they have solved the problem, all that is imported into Great Britain comes from China, where labour is cheap, and the patient China man decorticates and degums by hand and turns out the best fibre on the market. From £34 to £38 per ton is the market price of China Grass (the commercial name of Ramie) and even at that price it cannot be bought in the open market, but must be ordered for delivery three months in advance.

Some years ago the subject of Ramie-growing occupied our attention here. It was proved that four crops could be taken off per year at least, that it grew very readily, required rather a moist climate, that the fibre was good; but none of the decorticating machines put forward was effective, so the matter has been dropped until such a machine is invented. In case of developments at any time, those who have been formerly interested in it should keep a nursery of plants growing, as the instant there is an effective machine put on the market there will be a large call for it, and it will then be worth trying commercially.

MANURES.

THE most valuable of all animal manure is poultry droppings. It is most useful just where it is most needed--the vegetable garden. The poultry in Jamaica could produce value to the extent of many thousand pounds of manure if it were all saved. But how few people house their poultry at night? and yet in this country it is an easy thing to do so; no elaborate buildings are required, merely a covering, the sides being left open, or where it is wet, wattled. With fresh earth put beneath the roosts every day, five minutes is enough time to clean the place up every morning, the manure being put in a barrel under cover till the barrel is nearly full. Then it can be taken out and applied in the garden. This manure has a wonderful effect on fruit trees. We have known both cocoa and grapefruit trees which appeared to be dying fast, having apparently struck marl or rock, made to resume a flourishing appearance and keep it, through a good application of fowl manure dug in a little trench all around the roots five to six feet out. At any rate, the effect of this manure has lasted three years, and the trees are now large and heavy bearers.

Another valuable manure that is wasted, is the woodashes from the fire. This also should be carefully taken out and kept in a barrel and spread round fruit trees. It is often misused by being heaped round the trunks of the trees, but manure should never be used in such a way; the neck of the tree is the most vital spot and should always be kept standing clear and exposed, the manure being spread around beneath the branches or dug in. At the same time a circle of woodashes placed a little bit from the tree, say a foot, will help to keep off ants and slugs. If people who have not got lime at hand to wash trees would use woodashes, they would find this as good; indeed we think better, because of the caustic effects of the potash in the woodashes, as well as the lime.

We often see cows standing in pens where they are kept over night for milking, with several inches of fresh manure and several inches more of old crumbly stuff below, all being wasted. These pens should be scraped out once a week, and the manure used on fruit trees or in the garden.

It is the same with horse manure, large quantities of it are wasted which would be of great value to cultivated crops. Next to the fowl manure, the richest manure is sheep and goat dung. On some pens these are very carefully saved and sold to sugar estates and form quite an item of income.

The man to whom manure is most valuable is the small settler, and he it is who is most careless and uneconomic in the conservation of the droppings of the animals he keeps. Wherever a horse or mule or cow or donkey or goat or pig is penned, there should be dried grass flung in, not only to form comfortable bedding, but to

catch the urine which is the most valuable form of excretion, and is generally entirely wasted—and worse than wasted, for it soaks into the earth and makes it foul, so that it may be the cause of disease. There is no soil too rich for our staple crops like bananas, cocoa and coffee; these trees always can take manure and plenty of it. The more they get the better they bear.

THE VALUE OF POULTRY MANURE.—We have often called attention to the great value of poultry manure as an aid to the market grower. In the “Journal of Agriculture,” of Victoria, for December last, Mr. H. V. Hawkins, who is a poultry expert, gives an interesting and instructive account of some experiments he has conducted which goes to prove our contention. After stating that poultry manure was neglected by the grower, he goes on to give the result of his careful experiments and remarks that: “When it is remembered that each bird of 8lb. to 9lb. live weight drops nearly 52lb. of manure each year at night time alone, and averages daily droppings of nearly 100lb. per bird per year, what must the value of this manure wasted or trodden in yearly be?” To get a fairly accurate idea of its value he had gathered daily the droppings from four pens, the size of each pen being 75ft. by 25ft. In two of the pens there were eight birds—Dorkings weighing 8lb. each—and in the other two seven. The manure was gathered and partially dried for seven days, the weight of manure from each bird then averaging during the daytime 1½oz., and on a dropping board fitted under each perch at night time 2oz. (or equal to 46lb. per annum).

According to an eminent authority the true market value of this manure is as follows :—

	Fresh.	Partially Dried.
Moisture	61.63	41.06
*Organic matter and ammonia salts	20.19	38.19
Tri-basic phosphate of lime	2.97	5.13
Magnesia and alkaline salts, etc.	2.63	3.13
Insoluble siliceous matter	12.58	12.49
	<hr/> 100.00	<hr/> 100.00
*Containing nitrogen	1.71	3.78
and equal to ammonia	2.09	4.58

Roughly speaking, the fresh manure is worth £2 per ton, and when dry £4.

Thus the value of poultry is fully demonstrated. Lime or wood-ashes must on no account be used in the runs or houses, as lime liberates the ammonia, and then its value is practically gone. We have often urged that poultry houses should be strewn down with burnt earth, as, next to charcoal, the material is the best fixer of the nitrogen. No manure can beat that of poultry for tomato growing where used in moderate quantity, especially on light soils.—The “Fruitgrower,” London.

R U B B E R.

THE CASTILLOA ELASTICA.—We give below the translation of a letter to "Modern Mexico" from a Mexican planter, relating his experience with the cultivated Central American Rubber tree during 16 years. Cacao is also grown on his plantation, and it will be noted that he uses the Castilloa as a shade tree for the cocoa.

"For many years we have been cultivating rubber and cacao on this property, and all we say hereafter is the result of sixteen years' experience; we are agriculturists from practice, not from theory. In these lands, and in the forests and shady places, wild rubber trees are found in small, scattered patches; they have grown there because birds have carried the seed. The wild rubber tree grows very slowly and lives but a short time when tapped, because the cuts made in the bark to gather the gum there remains much moisture, and as the trees do not receive the direct rays of the sun, worms soon appear and drill into the tree, which soon dies.

A cultivated rubber tree begins to blossom at six to seven years of age, the flow taking the form of a small shell in which there are from eight to twelve seeds, each seed being wrapped up in a fleshy, sweet and colored matter.

Seed Raising in Nurseries.—The shells fall from the tree during the months of May and June, when they are gathered to plant in the nurseries. To make the nurseries properly the land should be thoroughly cleared, and the seeds planted at a distance of six inches apart, taking care that the ground is sufficiently wet.

When the seeds are planted a shade must be constructed one meter high, four meters wide and as long as needed. After a week the seed should sprout, but this will depend on the moisture of the ground. When the plants are thirty days old, the shade should be reduced 25 per cent. so that the moisture does not kill them. When they are fifty centimeters high, the shade must be cut down to only 20 per cent. of what they previously had. When they are one meter high, they are ready to be transplanted. This can be done when they are smaller, but the result is not so satisfactory.

Transplanting can be done in two ways, with the 'pilon' from the third week of July until February, and without the 'pilon' from the third week of October to January, which is the rainy season here. The latter system is rapid, sure and economical, because it costs about 75 per cent. less than the other. Two inches of main root must be cut from plants set out without the 'pilon.' The 'pilon' is simply a pointed stick used to make holes in the ground in which all the roots of the plant can find accommodation. The ground prepared for the plantation must have more shade if the planting is done without the 'pilon,' but if the planting is done with a 'pilon' less shade is necessary.

Rubber in Cocoa or Coffee.—If the plantation is a mixed one;

that is to say, if there are coffee or cocoa plants among the rubber trees, the latter should be planted at a distance of nine metres from each other. In our plantation we have planted rubber plants at this distance, to shade our cacao plants, because the latter need much shade for their development. Care must be taken that when the rubber plants are small there are no other plants in the immediate vicinity to interfere with their growth. After two years, shade for the rubber trees should be reduced 25 per cent.; after three years, cut out another 25 per cent.

Topping the Trees.—When the trees are three years old they should be at least three metres (nearly ten feet) high, when, if seeds are not available, they can be cut off at a height of half a meter and the tops planted, either to replace plants that did not grow or to make new plantations.

Holes, where this transplanting is done, should be from five to six inches deep. Care must be taken that the base of the branch transplanted is well covered by earth. After fifteen or twenty days a number of sprouts will appear; the best one only should be kept, cutting off the others. New sprouts will appear at the base of the plant after a few days, and they should also be cut off, leaving only the best one. After two years these new and the old plants will be of the same height. When the trees are four years old all shade can be dispensed with, and after that the ground carefully cleared of shrubs every year.

Tapping Methods and Yield.—When trees are seven years old they can be tapped from one-half of their height down, making three small cuts on the right side and three on the left side. Trees then give from 150 to 200 grams (one-third to four-ninths of a pound) of rubber, and the incisions close up very well. After two years another exploitation can be made regularly every year. When the trees are 12 years old they will give from 400 to 500 grams (eight-ninths to one and one-ninth pound) each. The system we have here is a very bad one because we lose one-third of the resin. If such were not the case we could get about 700 grams from each tree. When plantations have been exploited for twelve or fifteen years, so many cuts are made in the trunks of the trees that they are allowed to rest for four or five years, when they can again be exploited as if they were new ones. They will then give about three kilos (six and three-fifth pounds) each. The best time to tap rubber trees is from December to April.

White and Yellow Rubber —There are two kinds of rubber, the white and the yellowish. The color can be seen only when it is extracted from the plant. The yellowish rubber tree gives a thin latex which flows down the cuts from right to left until it reaches the trunk, where it is gathered to make the sheets that are to be cut later, because rubber if sold in sheets does not command so high a price. The latex of the white rubber tree is thicker; this latex does not flow down to the trunk, but remains in the cuts; this is the raw latex.

When we bought this plantation we found in the woods some trees which, according to information received from old residents, are 50 years old. They are now two meters thick at the base. When we tapped them for the first time they gave resin enough to fill one of the five-gallon cans generally used for petroleum, out of which we obtained five kilograms (eleven pounds) of rubber."

It is, when we reflect upon it, an astonishing short-sightedness and carelessness, that we in Jamaica have not many years ago studied closely the prospects of rubber commercially, and noted carefully the growth and yield of any rubber trees that have been growing in Jamaica. If this had been done, we would at this moment have had definite local information regarding both Para and Castilloa, and also this Virgen Rubber, the importance of which has been so far overlooked in the world. Para is being planted through tea plantations in Ceylon, partly as shade and partly as a more permanent crop when the tea is taken out. Castilloa Rubber is being planted in Central and South America as shade for cocoa trees, see article on page 188 of last Journal. In Virgen Rubber, (see page 197 last Journal), we have a chance to take the lead in a most valuable commercial product, with a tree which is suitable for shade for coffee and for planting in the higher altitudes here, where the conditions are also typical for raising the highest grade of coffee. Our soils are much richer than Ceylon soils, and there are suitable areas typical for planting Virgen Rubber and coffee, in a fine climate.

A Rubber Exhibition, under the authority of the Ceylon Government, will be held at Peradeniya, Ceylon, beginning on Sept. 3rd, and remaining open for a fortnight. The first suggestion of this Show was from private sources—a local affair for a day—but the Government took the matter in hand, proposed a broader programme to cover a fortnight, and is assuming the cost. The real development of the planting interest, of course, has resulted from the enterprise of the planters themselves who have had the good judgment to work in concert, through their Associations, in studying problems connected with rubber just as they did in the pioneer days of tea in Ceylon. But while the planters have not depended upon the Government, the latter has sought in many ways to promote the interest of the planters. On the whole, the situation in Ceylon is one which might well be desired by many other localities.—"India Rubber World."

THE total annual production of Rubber throughout the world is 57,000 tons. Of this total 55 per cent. came from South America and Africa. The French possessions in the West Coast of Africa produced 7,000 tons, and the French Congo 3,000 tons, while the output of the Belgian Congo does not exceed 6,000, notwithstanding popular opinions to the contrary. The United States consumes

26,470 tons, Germany 12,800 tons, Great Britain 10,000 tons, France 4,130 tons, Austria-Hungary 1,520, Holland 1,218, Belgium 748 and Italy 588 tons.

A number of Mexican Rubber Plantations, according to reports recently made public by the owning Companies, are in thriving condition, apparently having made all the progress and development that have been expected by this time. Some of the planters evidently feel that there is now nothing to do but to keep the plantations cared for and to wait for the trees to reach a tappable size.—“India Rubber World.”

COTTON CULTIVATION.

Offer of Gold and Silver Medals.

ALTHOUGH we have been so unfortunate as to get rather a set back in making a start in cotton cultivation, owing to the attack of caterpillars, judging from all previous experience of these pests they come in number, only perhaps at intervals of several years, about four or five, and as the other West Indian Islands are doing so very well, we do not think we should be too disheartened. It is just the crop that we have looked for to be grown in those rather dry districts where, unlike the rest of Jamaica, there is not much choice in the matter of industries. In Vere there is only sugar and stock, cotton will make an excellent rotation with sugar. In the plains of St. Elizabeth there is little cultivation at all, except food crops and a good export crop is badly wanted. The first attempts there showed that a high quality of cotton could be produced even at some elevation. one of the best samples in Jamaica, for instance, was grown at Mountainside. The introduction of anything new requires persistence. A set back at first should not be allowed to damp enterprise, and small settlers in St. Elizabeth should still go on planting some cotton, and we shall be glad to supply them with seed for the purpose. They must take care, however, to plant exactly at the right time, and that is when they would plant great corn or guinea corn in their district. As we have often said and now repeat again, cotton should not be grown where people have many other thriving crops like bananas, cocoa, etc., in districts with plenty of rain. It is useless to grow it there; not that it will not grow; as a matter of fact it will grow into a large bush and produce abundantly, but the climatic conditions seldom allow of the crop being picked.

As showing some of the success in other islands, we give the instance of an estate of a gentleman in Nevis, (who also has property in Jamaica), and who has given up sugar there. There are 49 acres under cultivation and out of that, one 14 acre field will produce 300lbs. of lint per acre, and the total acreage on the average,

200lb. of lint. Judging from the valuation set on the samples sent home, the returns will be handsome—these samples being valued at 1s. 1½d., 1s. 3d., 1s. 4½d., and 1s. 5d. per lb. In St. Kitts also cotton has been grown as a catch crop with cane, and has given very remunerative returns.

In order to encourage the cultivation in the West Indies, Sir Alfred Jones has offered Gold and Silver Medals for the best cultivations of cotton. In Jamaica, there will be offered one Gold and two Silver Medals, the former being value for £5 and the latter £1. The conditions under which these medals will be offered are printed below, and have been prepared by the Board of Management of the Agricultural Society to whom the matter was referred. The best planting season of the year for cotton, it must be noted, is from 15th to 31st August as a rule, but planting may go on till the 15th of September. Good rains are then assured, and the crop will come in, in what are usually dry months, February and March, so that there is just time for all those who are interested to make their application for seed, choose their ground, prepare it, and get it thoroughly ready for planting. We shall be glad to hear from all interested cultivators.

ONE Gold and two Silver Medals are offered by Sir Alfred Jones, K.C.M.G., for the three best cultivations of cotton in Jamaica during the year ending 31st March, 1907, on the following conditions:—

1. That the cultivation be not less than one acre.
2. That it be Sea Island or Egyptian cotton.
3. That it be the crop planted in the 'fall' of the year, August and September.
4. That the Judges be appointed by the Agricultural Society, and that their verdict be final.
5. That notice be given to the Secretary of the Jamaica Agricultural Society at the time of planting that the cultivation is entered for competition, naming the location and size of cultivation.
6. That three months after planting a full report of the cultivation be sent in to the Secretary of the Jamaica Agricultural Society giving particulars as to (a) the type of soil, (b) how prepared for cultivation,—for instance, whether forked or ploughed, and how often, (c) how planted,—for instance, how much seed was used and what space apart, (d) how often weeded, and what further cultivation was given, if any.
7. That access to the cultivation be allowed to any Judges appointed by the Agricultural Society during the period of growth.
8. That full details of the cost of the cultivation be reported to the Secretary, Jamaica Agricultural Society, together with the weight of the crop picked, the accounts to be submitted to the Judges, if called for. In the judging every detail will be taken into account.
9. That the cultivation be judged worthy of reward.

CONSTITUTION.

THE first essential in all stock is constitution. Pedigree is of little value, even conformation is of no use without strong constitution. Abounding vitality is what we ourselves desire in a horse, in a cow, in a pig, in a fowl, that is what we have advocated ; and the Agricultural Society is fortunate in having had a class of stock that have proved themselves possessed to a great degree this quality of constitution. The Welsh Stallion has had but one trifling sickness in his nine years in the island; neither externally nor internally has he needed doctoring. He has always been easily fed, his allowance at present being six quarts corn, and six bundles guinea grass, and on this he can be used moderately as a saddle horse, attend to mares, and keep in excellent condition. The Bulls that belong to the Society, and those in charge of the Society, all lived through their acclimating fever, which is a severe test, and they have not always received the best of care ; they have been badly run down and have picked up again with ordinary good treatment ; they have never been pampered. This proves they are of good constitution. It is a class of stock that has proved itself hardy and possessing of strong vitality that we should breed from. If in addition, such possess pedigree with good conformation, then all the better.

BORDEAUX MIXTURE AND INSECT PESTS.

EVERY year people are getting more observant, and perhaps also every year pests are getting more plentiful. Between the two, at any rate, we hear more of damage to economic trees caused by fungoid disease, scale insects, plant lice, various kinds of beetles and different kinds of grubs, caterpillars and ants. There is the small black ant, which is more and more becoming prevalent on orange trees, which has been brought to our notice more particularly from Porus district ; but in the Red Hills district the people complain of it also and ask for a remedy. We suggested several ideas which may be tried, but to deal with it would require systematic study and experiment on the spot. As a rule, however, people do not try anything, but simply leave things alone. This is bad policy. Wherever a pest of any kind appears, owners of fruit trees should try one thing and another until they are successful in getting something to deal with the pest. What may be effective against one class of pests will not do for another. Some insects live by eating leaves, others by sucking them. What will poison a leaf-eating insect will not poison a sucking insect. Others are boring insects, and feed inside the tissues of plants, spending the greater part of their lives securely hidden. Fiddler Beetles are examples of leaf-

eating insects, weevils are examples of boring insects and plant lice are examples of sucking insects. In applying remedies, it must always be remembered that when a remedy appears to be unsuccessful it may really have killed all the living insects, but that others have hatched out from eggs since, so the application is required to be repeated, so that those hatched from the eggs after the first application, may be also killed. Insect pests usually pass through three stages, 1st, the caterpillar or worm or grub which hatches from an egg—this is usually the destructive stage; 2nd, after it has grown to its full size and become fat, it forms itself into the chrysalis or pupal stage, when it is dormant and is usually hidden; 3rd, from this condition, the full grown insect emerges, and after a while lays eggs which will hatch into grubs, caterpillars or worms. These pests may be caught or poisoned, when they appear as moths, or butterflies, beetles or flies, and so prevent them laying eggs. Thus the Fiddler Beetle can be picked off the orange trees often in quantities, and this is the surest way of preventing the orange grub.

The usual poisons used for pests on plants are Paris Green, Kerosene and Tobacco. It will be found, however, that the most effective all-round poison that will kill or prevent or cure equally well fungoid disease, caterpillars, ants and grubs, is Bordeaux Mixture. It is recommended to all planters and fruit-growers for :

1. Its thorough effectiveness as a fungicide.
2. Its safety from a hygienic point of view.
3. Its cheapness.
4. Its harmlessness to the sprayed plants.
5. Its beneficial effects on plants other than those resulting from the mere prevention of the attacks of parasites.

This Bordeaux Mixture is quickly and easily made if care be taken to follow the directions, but if the directions are not complied with closely, there may be no results or perhaps even injurious results. To make this mixture, take $12\frac{1}{2}$ quarts of water, 6oz. of Copper of Sulphate (usually called Bluestone, which must be powdered fine) 4oz. of unslaked lime. In a vessel containing $6\frac{1}{2}$ quarts of water suspend just beneath the surface all the Copper Sulphate tied in a coarse cloth. In another vessel put the unslaked lime, adding only such quantities of water as will keep the lime moist; do not let the lime become too dry at any time, however. A perfectly smooth paste free from grit should be formed, and when the lime is slaked, add sufficient water to bring the whole up to $6\frac{1}{2}$ quarts. When the lime is cool and the Copper Sulphate is dissolved, pour them together into another vessel, stirring well before pouring and stirring the mixture well for a few minutes. To determine whether the mixture is safe to apply to the tender foliage of trees, insert a knife into the mixture for a minute. If metallic copper forms on the blade, the mixture is not safe, and more lime water is added. The best time to spray or wash trees is just when

the fruit is taken off, and then they should be washed or sprayed again when the young fruit is on the trees, but they should never be sprayed when they are in blossom, else bees which are so useful to the fruit-grower, may be poisoned. Every one knows what insect pests are, but not everyone knows what fungoid diseases are. The bud-rot of the coconut tree when the "cabbage" begins to get brown and rot away is a fungoid disease. The lime-knot in lime trees may turn out to be caused by a fungus also, but is being investigated at present. The "rotting" at the necks of cocoa and orange trees is usually caused by a fungus, developed through wrong conditions. The "gumming" of cocoa trees is supposed also to be a fungoid trouble. All these can be treated with Bordeaux Mixture.

FOR ANTS.—One pound hard soap, one quart castor oil, four ounces carbonate of soda, one gallon of boiling water. Shave soap thin and add with carbonate of soda to the boiling water. When perfectly dissolved and boiling, stir in the castor oil. It will keep indefinitely in a tightly covered tin can. Dilute with from twelve to twenty parts of water, according to species of plant to be used on. The emulsion may be thinned with a little hot water before adding the cold water. Use it (without diluting) to paint the stalks of roses and shrubs and trunks of trees infested by ants and other insect pests. Apply with a brush. Ants are routed by first spraying with the diluted emulsion, then painting stalks, as above with pure emulsion. If the nest can be found, dilute the emulsion with ten parts of boiling water, make holes in the hill with a pointed stick and fill with the scalding solution. Spray cabbages, melon, cucumbers, and all garden plants with this emulsion, diluted ten to fifteen times, for cabbage worm, plant lice, etc.

SULPHATE OF COPPER.—Sulphate of copper, commonly known as "blue vitriol," or "blue stone," is used agriculturally for several purposes. Combined with lime in the form of Bordeaux mixture, it is a most effective fungicide, and its value as a remedy for potato disease and many other fungoid attacks, is well known, whilst solutions of this substance in water at varying strengths, are used for the prevention of bunt and smut on cereals, for the destruction of charlock, and for the cure of foot-rot in sheep. In purchasing sulphate of copper, care should be taken to demand a product of 98 per cent. purity, material offered as "agricultural" sulphate of copper being avoided. The usual adulterant of sulphate of copper is sulphate of iron, (green vitriol), which is much cheaper. An easy test for the presence of iron in sulphate of copper, is to dissolve a little in water and add ammonia with constant stirring until a deep blue liquid forms; any quantity of brown flocks floating about in this blue liquid, indicates the presence of so much iron that the material should be subjected to a proper analysis previous to rejection.

SUNFLOWERS.

WE repeat the following published in this Journal some years ago :—"According to the "Pharmaceutical Journal," the best known antidote for malarial district fevers in different countries of South America, has long been practised and taken advantage of by the growth of sunflowers, not only as a certain prevention of yellow fever, but also as a lucrative article of commerce." For two seasons we could see sunflowers being grown all about—that was when we had seed to send out free. Now few sunflowers are seen. People should take pains to have them in their gardens. They are valuable because they are not only healthy plants to grow near dwellings, but the blossom is exceedingly handsome, they are rich in nectar, and bees work eagerly on them; the seeds are eaten by poultry, the stalks and leaves are eaten by horses and cattle. Surely, a plant of such all-round value is worth growing in our gardens, if not important enough for a field crop.

As far as exporting seeds, however, is concerned, we do not think we can compete with the present sources of supply, principally Southern Russia. The cultivation on a field scale would be pretty much like corn. In hand cultivation Sunflowers may be planted 3ft. by 3ft. For plough cultivation they may be planted 3½ft. by 2ft., four or five seeds to the hole. We expect that 50 bushels would be a fair return. It would be a very good return indeed to get 100 bushels, and would need the best of soils and high cultivation. That quantity would weigh about a ton, and the price of a ton in London is from £7 10s. to £8 10s., the seed being light it is a bulky crop, while birds and rats are all exceedingly fond of it. Then again as it could not be grown in a very dry climate the only parts in Jamaica where we really want more crops than we have, we ourselves do not see that there is anything in it. We do not produce our own corn, and Sunflower growing would interfere with the growing of corn. Therefore while not in the least desirous of discouraging any enterprise, we see no profit in Sunflower cultivation in Jamaica on a large scale.

COCONUT CULTIVATION AND SALT.

It has been a general custom here to add salt to the hole when planting coconuts inland, and we often receive letters asking if an application of salt would help on coconut trees that are looking sickly.

U. S. A. Department of Agriculture Bulletin on coconuts in the Philippine Islands, says :—"It seems, however, fairly well established, that the application of salt upon the best coconut soil, *i.e.*,

those that are light and permeable, is positively injurious. That the coconut is able to take up a large quantity of salt is not disputed, and the character of its root is such as would enable it to do so without the injury that would occur to most cultivated plants if given a strong application of salt, but the presence of salt is a substance that in no way contributes to the health, vigour and fruitfulness of the tree. The analysis of 1,000 coconuts weighing an aggregate of 3,125lb. disclosed drains upon soil fertility for that number amounting to nitrogen $8\frac{1}{2}$, potash 17, phosphoric acid 3lb., reducing this to crop and acres, and taking 60 fruits per annum per tree at the average for a bearing grove in our coconut district—(in Jamaica the plantation average is more than this.—Ed.)—which in round numbers should give about 10,000 nuts each year, taking from the soil a total of nitrogen $82\frac{1}{2}$, potash 170, phosphoric acid 70lbs. The coconut therefore is not an exhausting crop, a crop of corn taking more than double the nitrogen and phosphoric acid and a little less potash." Reference should also be made to an article on page 7 of Journal for 1905.

If everybody who thinks that his coconut trees require salt would add a bushel of fresh wood-ashes instead, the trees would not be long in showing they were benefitted thereby. As may be seen the coconut requires potash more largely than the other elements.

S T A R C H.

No less than 2,000,000 tons of potatoes are used in Germany in distilling spirits, the residue from the distilled operation being used as a cattle food, besides, another 2,000,000 tons annually are used in the production of starch, and in addition there is manufactured from the potato,—syrup, flour, dextrine, etc. The export of potato-starch and flour from Germany is not less than 46,000 tons annually, and of dextrine 14,000 tons.

Our cassava is much richer than potatoes in starch, the figures being approximately 18 per cent. against 25 per cent., and cassava can be raised here much cheaper than potatoes can be raised in Germany. The residue from the cassava may also be useful in feeding cows, in dairies for instance, when mixed in proportion with a flesh-forming food as pea or bean-meal, these products being also raised locally in rotation with cassava or as a catch crop among the young cassava.

ALCOHOL AS A MOTIVE POWER, AND ITS PRODUCTION FROM STARCH.

In Germany, all alcohol intended for industrial purposes—*e.g.*, for motor power, heating, machinery, illuminating, and all other uses, in fact, other than drinking—is "denatured," that is, it is rendered unfit to drink by the addition of some chemicals. Such

"denatured" alcohol is free of the excise levied on all alcoholic drinks. In this country, (U.K.) the revenue from the spirit duties is a very large factor in our national revenues, and successive Chancellors of the Exchequer have feared to relax the bonds round the industry of spirit distillation to any extent. The result is that the industries depending on cheap alcohol have been cramped, and we have been forced to sit still and see our rivals forge ahead under more favourable conditions. The finance act of 1902 has done a little towards giving manufacturers a cheap spirit suitably denatured, but a much greater freedom in the use of cheap spirit is desired.

Dealing next with the value of alcohol as a substitute for petrol in supplying the motive power for self-propelled vehicles, the price of petrol is 1s. per gallon, whilst the denatured alcohol for industrial uses (amongst which motoring may or may not be classed) cost 1s. 6d. per gallon, and its use at this comparatively cheap rate is limited by certain conditions. In Germany the price of pure alcohol is 9d. per gallon in 1,500 gallon lots, 10d. per gallon in forty-gallon lots for industrial purposes, and 1s. 3d. per gallon in one gallon lots; and alcohol at 1s. 3d. is equal to petrol at 1s. 6d. per gallon, assuming a satisfactory efficiency. The result of recent French trials and the increasing use of alcohol in Germany, show that alcohol is as efficient as petrol, if not more so. The utility of a cheap, reliable power-driven vehicle to farmers, especially to those who have long journeys to and from the station, is obvious, and assuming that the case for alcohol as a motor-spirit is proved, the author discusses the means whereby the production of alcohol may benefit the agricultural industry. We must leave to the excise authorities, he says, the removal of the duty, the control of the distribution, the suitable denaturing of the spirit, and the fixing of a standard of composition.

Practically a ton of potatoes, with an average percentage of starch of 18, will yield 22 gallons of alcohol, so that the value of a ton of potatoes as an alcohol-producing crop is equal to that of two tons of beet. The cheapness of potatoes on the Continent favours the production of alcohol at a very small cost, but here the market prices during the last few years have been much higher than the alcohol potato grower would receive.

It does not seem, then, as if the production of alcohol from farm crops would be a remunerative undertaking as far as the farmer is concerned, as long as the present demand for mangel and potatoes exists, and the methods of the utilization of those crops remain as economically efficient, even if all restrictions on the sale of alcohol in the form of duty were removed; and this proposed industry must at present remain in the list of those which is more profitable for us to allow to be in the hands of the foreigner. When the duty is removed on a spirit suitably denatured, or rendered unfit for drinking, a demand, the writer thinks, will spring up, and the erection of distilleries in suitable centres may induce farmers to turn their attention to supplying the raw material, and considerable benefit to agriculture may thereby result; but he is bound to confess that the figures he has obtained do not hold out such an extravagant vision of profit as to cause farmers to clamour for the erection of the distilleries.

INDUSTRIAL ALCOHOL.

THE following article is of interest to us who can manufacture alcohol from sugar cane and starch.

THIS is a matter that interests every agriculturist here, not only those who raise crops which may be turned into alcohol, but also those who use cheap or small engines for power. In Germany, enormous quantities of potatoes are turned into alcohol every year for use as fuel and for other industrial purposes where a non-drinkable alcohol can be used.

The great number of ways in which alcohol may be profitably used makes it a very important factor in the industrial world. Its varied uses are not commonly known, aside from its use as a beverage, and in medicine. It is a necessity in the manufacture of over a thousand different commodities. It is used largely in the manufacture of varnishes, lacquers, gilding and bronzing; it is a solvent in the stiffening of hats and shoe tips; in the manufacture of smokeless powder, celluloid, photographic films and fulminating paper for gun caps; in the manufacture of dyes for silk, cotton and woolen goods, wall paper, printers' ink, and as a fixative for colors in dyeing. Besides its use in the arts of the manufacturer must be reckoned its wide usefulness in cleaning, heating, lighting, etc. These last two features are little utilized on account of the high cost, and its use in the many ways mentioned above is greatly curtailed for the same reason. The alcohol light is little known in this country, but we recently examined a French alcohol lamp that made a brilliant, though soft, white light, an ideal light to read and study by, and which, but for the high tax on alcohol, would be an economical one. It works on the principle of a gasoline stove, vaporizing the alcohol and burning the vapor in a mantle such as is used on a gas lamp. As an engine fuel for internal combustion, as in a gasolene engine, its value is now generally recognized. The "Iron Age" (a very conservative authority) says, in this connection: "The facts are so obvious that it is only a question of time when every farmer will have one to aid in all the varied work of the farm." At present the only available fuel for these engines, and for automobiles, motor cycles, power boats, etc., is gasoline, which is constantly increasing in price. At the same time it is more obnoxious and more dangerous than alcohol would be. If it were possible to get alcohol at a reasonable price it would quickly displace gasoline. One of the greatest arguments favouring the use of alcohol as fuel and light is the fact that then each neighbourhood could have its own fuel and lighting material from its own farm products.

The one thing that stands in the way of development of a great industrial alcohol production in this country is the heavy tax imposed upon all grain alcohol under our internal revenue law. This tax amounts to \$1.10 per gallon on proof spirits, containing 50 per cent. of alcohol, and on this basis upon commercial, 94 per cent.

alcohol, it amounts to \$2.07 per gallon, making it impossible to utilize such alcohol in the arts or manufactures with profit. Were it not for this heavy tax industrial alcohol could be produced profitably at 15s. to 20c. per gallon. We would not even suggest the removal of the tax from alcohol manufactured for use as beverages. The tax on such products is all right and is an important source of revenue to our national government. But let all so-called industrial alcohols be denaturalized, made unfit for use as a beverage, in such a way that they will still be useful as fuel, light, solvents, etc. This can be done, and has been done in other countries for many years. The United States is the only great nation that now imposes a heavy tax on industrial alcohols. No such tax is imposed in England, France, Germany, Russia, Holland, Denmark, Norway, Sweden, Austria, Switzerland, Italy and several other countries. This country does not tax the manufacturer of wood alcohol; why should grain alcohol be taxed when it is made unfit for use as a beverage?

One of the leading arguments that some men will present against the removal of the tax is that it will cut down the national revenues. Not to any great extent. By removing the tax on denaturalized, non-drinkable alcohol, the use of alcohol for that purpose would not be lessened at all, and it would still pay its tax. The only cases where denaturalized alcohol could replace ordinary grain alcohol would be in the manufacture of high grade varnishes and certain chemicals. It could never be used in flavouring extracts, perfumes, most chemical and medicinal uses, drugs, etc. On the other hand the removal of the tax from industrial alcohol would greatly increase the manufacture of many articles, the domestic manufacturers of which cannot compete with foreign manufacturers, and thereby would cheapen them to the public. We would have a source of heat and light and energy that would be available to every community independent of the oil monopoly, and which would, at the same time, be safer and cheaper. Many farm products could then be used that are useless now, and many waste could be stopped.

So far the sugar estates have but few electric railroads, and Cuba has no electric railroad system, such as is fast gridironing the United States. This would seem to me one of the possibilities of the future. Each big plantation, with its population of several thousand, will eventually have its railway connection with its neighbors, and the roads will carry sugar cane to the mills as well as other freight and passengers. Many of the sugar planters are studying cheap railroad transportation. They are considering the use of automobile engines made after the present gasoline pattern operated with alcohol as fuel. Alcohol here is much cheaper than gasoline. Indeed, it is a bye-product of the sugar-mills, being made at so little cost that it is sold in hundred-gallon casks at 12 cents per gallon. It has, it is said, about 98 per cent. of the heat generating power of commercial gasoline, and it can be used with a little gasoline to start it. I understand that German engineers have been making experiments with alcohol as fuel, and they are now

using alcohol engines for small electric light plants in some Havana stores. At the agricultural experiment station at Santiago de Vigos the pumping and lighting is done by means of alcohol, and there is an establishment in Havana which has 160 electric lights run by alcohol motors.

POULTRY NOTES.

MORTALITY AMONG DUCKLINGS.—Owing to the communications we received about ducklings dying off, we wrote a paragraph on the subject in the "Journal" for April, but the information given does not seem to have been explicit enough, so we write now specially on the subject.

Sometimes the mortality is caused by the want of vitality in the young ducks themselves, through the inbreeding of the parents, or through the drake having too many ducks to look after, or through keeping the eggs over too long before setting. Care should be taken to get the eggs all laid about the same time in order that the young birds may hatch out together. The eggs should not be over a week old and should be kept in an airy but dark place, else when the hatching is finished some young one will be anxious to get out to feed while the others are still too weak to move about. In that case it is better to remove the stronger ones, putting them in a box in a warm place for 12 hours until the others pick up strength. If the strong ducklings are anxious for food they can have it. A shallow saucer or tin, *not* with sharp edges, containing some fresh water should be placed outside the coop on a board, the mother hen or duck should first be well fed herself, and then she will be very attentive to her young family. Into the water crumble some stale bread or crusts. It is very fatal to feed ducklings only on sloppy food during the first two or three weeks, although the old ducks like to be fed so, and may be fed so. Crusts of bread crumbled in the water do not make a slop in the sense we mean, which is the ordinary thin paste made of half-raw cornmeal and water, a most unsuitable feed. What we should give them is cornmeal boiled, and then baked in a pan, and crumbled on to a clean board for the young ducks to eat there, not on the ground. If they get an unvaried diet of cornmeal, unless they can pick up plenty otherwise, they will not thrive; the food should be varied, and they should only get as much at one meal as they can quite clear off. If food is left lying about it will sour, and the ducks may eat it all the same, but it makes them ill. Household scraps—yam, bread, cooked rice, little bits of meat, all crumbled together make excellent changes from the cornmeal pudding. Where wheat and rice middlings can be had this is a very useful food. They should always have plenty of water in shallow vessels placed in the shade so that they may drink when they please, but it is better for young ducks not to go

into the water at all until they get their feathers. If they get thoroughly wet and run about with draggled down just at sundown, they often get a chill, as unlike chickens they do not want to rest then. That is why a hen makes a better mother than a duck, she tries to keep the ducklings clear of water, and she tucks them all comfortably below her at sundown, but a duck mother does'nt ; she takes them to water, and wants to go about all night.

Then young ducks suffer from indigestion from other causes than the wrong kind or form of food. In lots of places they run on grass, and there is no supply of small grit available which they must have, although to a less degree than chickens. These are all points to note.

DAIRY SHORTHORNS.

In the illustrated Agricultural Journal called "Farm Life," of London, there have been appearing most interesting and instructive descriptive accounts of visits made to prominent farmers throughout the United Kingdom, some of whose names are known all over the world where good cattle are bred, but the most interesting have been visits to that small part of a small country, which has been and is so outstanding in the breeding of stock—Aberdeenshire, Scotland. There is the home of the Aberdeen-Angus, there it is also where Shorthorns have reached the pinnacle of their fame, and are even more in demand at the present time than at any time through the long course of years, since they first became prominent as a breed in their original home in the north of England.

In connection with the present recommendation, that we have made, that if a bull, or bulls, are imported, it ought to be the dairy Shorthorn breed from good farming stock, nothing fancy, to be stationed in Manchester or St. Ann, it was interesting for us to find in "Farm Life" the description of a visit paid to the farm of Mr. James Findlay, Balquharn. The article says :—"In keeping pace with the growth of scientific knowledge within recent years, the dairy farm has been revolutionised, and it was with keen interest I set forth a few days ago to pay a visit to Mr. Findlay's up-to-date farm at Balquharn.

He comes from a long line of farmers, his father having been the first man chosen to act as judge for the dairy and milking competitions, initiated in connection with the Royal Northern Show at Aberdeen.

Immediately on arrival at the farm, we began our tour of inspection, visiting first one of the commodious, comfortable, well-ventilated byres, in which a herd of about 60 dairy cows was accommodated. With the exception of a very few good Irish Shorthorn cows, the whole stock was composed of English dairy Shorthorns, cows of big frame with grand milking qualities. All the cows are very much of one type, the strong similarity between them being very noticeable in passing from byre to byre.

Having learned that Mr. Findlay had tried Ayrshires, and seeing none in his present stock, I asked him if they had not proved a success.

"Ayrshires do not suit the system of dairy-farming I have adopted," he answered, "My cows are bought with a view to milk production first, and suitability for butcher purposes afterwards. Breeding is not part of my scheme. I work on purely commercial lines. It seems a great waste of good breeding cows, but from the dairyman's point of view it is the best, and I believe also from the consumer's. For us, it is the most profitable—we are saved the risks incidental to keeping breeding stock, we ensure a steady milking supply, and by milking and feeding simultaneously we lose no more than we would by keeping all calving cows."

"Is the milk of better quality than that of the ordinary breeding cow?"

"The quality is much more uniform. In most cases, it is quite as good when the cow is ready for sale as when she is first milked, whereas the milk of breeding cows deteriorates in quality, as well as diminishes in quantity."

Northern Shorthorn breeders aiming as they do more at the beef type, Mr. Findlay has to come southwards in search of the class of cow he needs. When a draft of Shorthorn dairy cows is sent into Scotland from England, they first pass through the sale rings of the large southern towns, with the result that when they get to Aberdeen—Mr. Findlay's nearest market town—he would have to take whatever happened to be left. He therefore prefers to go to the fountain head in order to get the best, and his chief market is Carlisle. He likes to procure cows about four years of age which has just dropped their third calf and for which he has to pay from £20 to £25. After having milked them from 12 to 15 months or until the milk supply begins to give out, he disposes of them, to the butcher, having to be content with about £5 less a head than the buying bill.

The system is this; the cows are first placed in the heavy milkers' byre, where milking takes place three times a day. By-and-by they are moved into another byre, where milking takes place twice a day, and finally, they are moved on to the third byre from which they pass out ready for the butcher. They are under milk the whole time.

On my asking him in what points a true dairy Shorthorn differed from the beef type of the Shorthorn breed in his neighbourhood, Mr. Findlay, said:—"A dairy Shorthorn should have a longer head and slimmer neck. She has not quite the same girth, but she should be well spread across the hooks, and should be sweeter towards the tail. The Shorthorn proper is more patchy, and a Black Poll more droopy towards the tail. A good milking cow has a long thin tail. But the udder should hang squarely down from the cow, and from a side view, should be in line with the shank. The udder should be big—there can't possibly be quantity

if there is no where to hold it—and the teats should be well set at the four corners. The veins should be fairly prominent, and one of the very first things a dairyman looks for in a cow is the soft, pliable hide. The skin ought to be sleek, a cow with a hard hide is never a good milker.”

The cross of a Dairy Shorthorn Bull on half or quarter bred Mysore or Zebu cows will just about give us a typical utility cow for Jamaica.

TRADE NOTES.

STOCK-DIPS—GOOD AND BAD—Mr. J. S. Woodward, writing in the “Rural New Yorker,” sharply criticises another writer for advocating the use of tobacco to kill lice upon animals. Then Mr. Woodward, with singular inconsistency, recommends the use of crude oil. Tobacco is certainly objectionable, for more than one reason. It is sickening to handle, and, while it will no doubt kill lice, it is not a disinfectant—that is, it does not destroy germ-life. Now, while you are killing lice you may as well kill the disease-germs with which your stock may be afflicted. A good germicide will help to heal wounds and keep the animals in a healthy and thrifty condition.

Crude oil, as an animal-dip, is even more objectionable than tobacco. It is unpleasant to handle; it blisters the skin; it makes the hair sticky, matted and messy, and converts it into a dirt-catcher. Further than that, it is more or less dangerous; because it is inflammable. The case of the herd of cattle that, after being dipped in crude oil, caught fire, ought to be a lesson to any one who thinks of using it.

Why will people dabble with tobacco, crude oil, kerosene, carbolic acid, etc., when there is better, cheaper, safer and surer material? Is it because they don't want something better, or because they don't know of anything better? If you, reader, are one of those who *don't want* anything better, we have nothing more to say. You are years behind the times. The procession is moving off without you. But if you are one who really *don't know* of anything better, we want to tell you about Kreso Dip. This dip is prepared from coal-tar and contains those materials that have long been recognized as the best insect and germ killers, and at the same time the least injurious to higher animal life. That is where Kreso Dip is strong. *It does the work*, and it does it without harming the animal. It costs less and has a greater variety of uses on the farm than any other dip. These are plain, hard facts that you can prove.

Now, what excuse is there for letting lice, ticks, mites, fleas, etc., eat the stock alive? Or what excuse is there for using tobacco, crude oil, kerosene, carbolic acid, etc.? Write Parke, Davis & Co., Detroit, Mich., for free booklets telling how to use Kreso Dip on all kinds of stock, and ask them to tell you the name of a local druggist from whom you can buy it.—(See Advertisement.)

FREIGHT TO EUROPE.—As will be seen from the first page of

this Journal the Royal Mail Co. have reduced, at the instance of this Society, their freight rates on oranges through to Glasgow and London by the fine steamers *via* New York to 2s. 6d. per box and 5s. per barrel. The former rates were 3s. and 6s., and they claimed that they could get this owing to their superior accommodation and fast service. Very few places are so well favoured for shipping to the great emporiums of commerce as Jamaica. Besides the lines of steamers trading direct, we have now the Royal Mail Co., in addition to the Hamburg-American Line, taking freight to the United States and on to Europe. For particulars as to the sailings and rates of these Companies refer to the advertisements in this Journal.

BENJAMIN'S HEALING OIL.—Immediately after a wound is made, or if a sore has been neglected, after a good wash with an antiseptic, same as advertised in this Journal, in some hot water, wounds and sores should be dressed with Healing Oil, which has a very soothing and curing effect. In strangles in horses, after washing out the nostrils with the antiseptic, Healing Oil should be rubbed in or gently syringed in. In coughs and colds in stock, it is good to administer Healing Oil internally according to directions.

ELLIMAN'S EMBROCATION.—If we were confined to one substance in the treatment of stock, and we were asked what would be the most useful under such circumstances, we should say Elliman's Embrocation for external treatment. With this and hot water, we could get along very well. Messrs. Elliman, Son & Co. supply a book on the treatment of animals in disease, practically free, upon terms to be found on the wrapper of their bottles.

CORNMEAL.—The enterprising firm of J. H. Levy & Co., Brown's Town,—the St. Ann Products Co.—have not only the finest and most complete machinery installed for cleaning and grading coffee, but have stations throughout St. Ann and Trelawny for buying the coffee in the cherry, pulping and drying on the spot, the parchment coffee being sent to the Brown's Town factory to be made ready for market. The same motive power which works the coffee machinery is also used for the machinery which deals with the corn. The Cornmeal is of the highest quality and there are also various by-products used for poultry and cattle food. An advertisement of the firm appears in this Journal to which readers are referred.

COMMENTS.

INSECT PESTS.—There is a new proprietary powder called "Vaporite," which is coming largely into use in the United Kingdom for the destruction of all insect pests, such as wire worms, slugs and grubs. It seems to us that this substance would be effective in killing the fiddler grubs which do so much damage to orange trees and also to cocoa trees. We asked for a sample and having received it shall have it tested and report.

POTATOES.—The Clarksonville Branch offered prizes for the best results in potato-growing, and these prizes were won as follows :—Nine persons entered for the competition. 1.—An agricultural fork awarded to James Bennett for 75½lb. of potatoes grown from 15lb. of seed. 2.—A small agricultural fork awarded to James Black for 72½lb. of potatoes grown from 15lb. of seed. The results obtained from the other seven ranged from 65 to 80lb. At a meeting of the Clarksonville Branch Society the prize-winners gave an account of the methods they had adopted in growing their potatoes.

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INTRODUCTION OF FOREIGN BIRDS.—Mr. John Harris, 15 Clayton St., New-Castle-on-Tyne, writes to say that he has supplied Mr. R. J. Taylor-Domville with birds for introduction to Jamaica, and quotes Starlings at £25 per 1,000, and Magpies at £15 per 100, put up ready for shipping, equal number of both sexes. We have written that it is not yet recognised that the importation of these birds is a blessing here, that although we cannot say that Magpies and Starlings have been detected in any wrongdoing, so far, yet, we never know what future generations may turn to in the way of diet, and so we have decided to be cautious. It has therefore been recommended to the Government that no foreign birds be allowed to enter without permission, which permission we expect will not be readily obtained, until we have had longer experience of the Starlings and Magpies and their progeny.

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MILKING TESTS.—At Ball's Bridge, Dublin, the Irish Milking Tests were held in April last. The lion share of the honours went to cows of the Shorthorn type, which showed great milking capacity. A Lincoln Red Shorthorn was second. The first prize cow had a total average weight of milk per day of 59lb. 2oz., and of butter a percentage of 3.60. The second prize cow had an average weight of milk of 60lb. 2oz., and the third prize 60lbs. 12oz., but finer points otherwise, that is, these three cows averaged 6 gallons or 24 quarts each. It is further stated that they were animals of great size and symmetry.

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RUBBER, COCOA AND IRRIGATION.—We particularly desire to call the attention of all planters growing bananas, to the article on page 188 of last Journal, where a description is given of a large property in Venezuela which is giving splendid results not only in planting rubber as shade for cocoa, but more note-worthy is it that the estate is under irrigation, and the cocoa and rubber have thrived with this artificial water supply, the rainfall not being sufficient. The results on this property are only exceptional in so far as it would appear that the owner is an exceptionally far-seeing and enterprising man.

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SHOWS.—Kendal Show.—It has been decided to hold this old-established function on Wednesday, 28th November. The Hon.

J. P. Clark, of Kendal, is President of the Show, **Mr. H. E. Crum-Ewing** is Treasurer, and as usual, **Mr. G. A. Bonitto** is Secretary.

At the Hanover Show to be held at Lucea on 1st August, the Society for the Protection of Animals in Jamaica has agreed to offer the following prizes, viz.:—Settlers' best cared mule, 1st prize, 8s., second prize, 4s. Settlers' best cared donkey, 1st prize, 8s., second prize, 4s. Settlers' best cared dog, 1st prize, 4s., second prize, 2s. **Mr. Cradwick** will attend this Show, and during July will make a tour of the parish, giving agricultural instruction with more particular reference to the preparation of exhibits for the Show.

THE Prize List of Brown's Town Show to be held on the 1st August, has been issued, and a copy may be had by anyone interested from the Secretary, **R. N. Heiming**, Brown's Town P.O.

Trinity Ville Branch has decided to hold a Show on 1st August and have prepared a very good Prize List which will be issued in June.

Buff Bay Show will come off on 1st August, and the hearty support of **St. Mary** and **Portland** particularly, should be given.

A Local Agricultural Show for small settlers will take place at **Mears Pen**, North-Clarendon, on Thursday, 9th August, 1906, in connection with the **Rio Minho** Branch of the Jamaica Agricultural Society. Liberal prizes are provided for Agricultural Products and Stock. This Show is open to the whole island.

BANANAS.—In the Trinidad Bulletin on page 38, it is said that on page 217 of the Agricultural Journal for 1905, it is stated that the time it takes a banana to shoot after planting is some 17 months. This is wrong. What is said is:—"That as far as my (**Mr. Cradwick's**) observations here (Hanover) go, a ratoonsucker under fairly favourable conditions takes about 17 months to mature fruit,"—quite a different thing from a plant sucker. When we plant bananas we expect to have fruit ready to cut in 12 months, in the lowlands, but owing to different circumstances, such as poor sucker and a bad start, damage by wind, too much dry weather, or too much wet weather, some take longer. In some places some fruit may even be cut under 12 months, first ratoons may take 15 or 16 months, but the older the bananas and the thicker the shade, the longer the ratoons take to come into bearing; but there is always a succession of fruit. It is difficult to make those unacquainted with banana-growing on a commercial scale understand all this.

PRIZE HOLDINGS COMPETITION.—We have sent out placards to all the Branches in the parishes concerned, announcing that the Prize Holdings Competition will be held in **St. Ann**, **Trelawny** and

Manchester, also leaflets stating the rules and conditions. These have been sent out to all the Secretaries and to some gentlemen who are interested. If any reader of this Journal in any district concerned, does not see these placards prominently posted up, or if anyone wishes a copy of the rules, and will kindly communicate with us, we shall be glad to see to both. We would urge all the Branch Societies to make the subject of the Prize Holdings a matter for discussion at their meetings; and every member should talk about it to his neighbours. This is the second round of the Competition in these parishes, and we hope that it will be made successful in every way through the co-operation of members of Branches and the Local Instructors, with ourselves. There is not much time to be lost, for though it is still early in the year, the judging is not to be left again to the very end of the financial year, which causes too much hurry and work at the end, but will take place between September and January probably.

VEGETABLE SEEDS.—The sales of vegetable seeds in the island have increased rapidly. We are glad to know that English seeds from the world-famed firm of Sutton & Son, Reading, which we got represented here last season, will be on regular sale by Messrs. W. H. Johnson & Co., and Mr. C. C. Cody, who also advertises in the Journal, reports that he has sold £20 worth more of the seeds from June 1905, to 29th May, this year, than he did in the corresponding 12 months previous. We must impress on our local Agricultural Societies and any of those who cultivate vegetables largely, to send their orders for seeds early if they are desirous of importing in quantity.

BRANCH NOTES.

SAVANNA-LA-MAR.—At the annual meeting of the above named Branch on April 25th, there was a very small attendance. The Treasurer's annual statement showing balance in hand of £1 9s. 3d. was read and adopted. The Secretary's annual report showed why there was no Show on the 1st January, as usual, and stated what had been done in collecting arrears. The membership list stood at 40. The meeting was adjourned till May 25th for election of officers. On that date, officers were elected as follows:—C. P. Bovell, Esq., President, J. W. Mennell, Esq., and Dr. H. Robins, Vice-Presidents, J. S. Segre, Esq., Treasurer, A. W. Levy, Esq., B.A., Secretary, and Dr. O. M. Seaton, Assistant Secretary. Committee:—Messrs. Washington, Turner, W. G. Mennell, B. H. Segre, Ventresse, McNair, and Revd. J. K. Braham. Resolutions were passed (a) with reference to importation of milch goats, (b) calling on other Parochial Branches to co-operate in getting a Local Instructor appointed. (c) holding a Show on 1st January, 1907, (d) approaching the Parent Society for grant towards the Show, since they were expected to have funds available for the purpose. Circulars from H. W. Hall & Co., of Old Broad St., London, offering free copies of price lists of colonial produce in English markets read; offer accepted. Committee meets June 22nd.—A. W. LEVY, Seco.

DUANVILLE, Clark's Town.—A meeting of this Branch was held at Kintore, on the 17th May. Present: Conway Whiting, Esq., M.P.B., presiding. The members turned out very satisfactorily, and it was resolved to make it the

annual meeting, as many members were present. The Secretary informed the Chairman that in consequence of the election of a member for the Legislative Council on the 27th January last, the meeting that was to have been held on that date fell through, and since then no meetings had been held, but he had been around the district seeing the members. The report for the year was presented for the information of members, and the Society was found to be in good financial standing, having a small balance to its credit. The President put before the meeting the difficulty the Secretary and himself had in keeping the Society in good standing, and having completed the second year of their existence he called upon them to put forward united efforts for the future betterment of Trelawny. Trelawny was once the most prosperous parish in Jamaica, but through the falling off of sugar estates it was now poverty stricken, that he had seen the benefit to be derived from the banana industry, especially by small settlers, he hoped they would all pay particular attention to the cultivation of this product as well as whatever else they had been engaged in. It was only by continual industry that prosperity could return. The Secretary, by permission of the Chairman, told the members of the Prize Holdings Competition of the good of the Society with the help of the Government had done and was doing to make their homes comfortable and decent. Many expressed their willingness to do their best to compete and hoped to win prizes. The meeting now thanked the Chairman for his work during the year, and he expressed his satisfaction at their appreciation of his efforts, and especially thanked the Secretary for his energy in keeping the Branch together. The officers of the Branch were then re-elected the same as last year, viz:—Conway Whiting, Esq., M.P.B., President; Vice-Presidents, Geo. Taylor, Esq., J.P., Revd. Walter A. Evelyn, B.A., and A. D. Jacobs, Esq.; Secretary and Treasurer, E. J. Hawkes, Esq.

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LAMB'S RIVER.—The ordinary quarterly meeting of this Branch deferred from April to May was held at Mount Hermon, on Friday, 11th May, 1906. Present, J. R. Williams, Esq., President. Revd. T. B. Prentice reported the Society's fowls (one rooster and three pullets) to be in good order. There had been a good supply of eggs, exceeding the demand; 18 eggs had been sold, and he had 21 pure-bred chickens. The Secretary reported that the tools had been regularly borrowed, and were now all in use. One fork which had been mended was now useless. The President reported that in consequence of difficulties in getting the goats from Barbados, Mr. Barclay had been unable to import the two which the Society hoped to get. It was agreed that the matter should stand over. In the absence of the Treasurer, his account with the Society was presented, showing £4 9s. 4d. to the credit of the Society. Mr. Graham reported that the Society's boar had been sick, but was somewhat better. He presented list of receipts since last account, 22nd September, 1905. Total £1 13s., of which 16s. 6d. was paid over to the Society. The following new member was proposed for election and elected:—William Thompson, Lamb's River P.O. Mr. Cradwick, who was present, addressed the members present, discussing the need of drainage for bananas, also the use of bananas for shading permanent crops, (cocoa and coffee). At the request of two of the members, Mr. Cradwick offered to visit and advise cultivators on the 14th and 15th of June. The meeting after thanking Mr. Cradwick adjourned.—P. A. SMELLIE, Hon. Sec.

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SANTA CRUZ.—The annual meeting of this Society came off in the Church of England Schoolroom, on the 3rd May, 1906. There were present: Revd. S. J. Marson, (President), W. Cradwick, Esq., and fourteen other members and visitors. In absence of the Secretary, S. Aug. Blythe, filled the office *pro tem*. The officers for the year are:—Revd. S. J. Marson, President; Messrs. C. R. Gregory, and E. V. Saltér, Vice-Presidents; Messrs. B. Birthwright, S. Aug. Blythe and W. S. Jones, Treasurer, Secretary, and Assistant Secretary, respectively. Mr. Cradwick gave a very helpful address for which he received a hearty vote of thanks. It is proposed to hold a Local Show on the 9th of November to keep up the interest of the Society, and to encourage better cultivation. Prizes will be awarded to members only of the value of 3s., 2s., and 1s., for the first, second and third best. Exhibits must be the *bona fide* property of the exhibitors. The following will be a list of the ex

hibits :—2 breadfruits, 1 pineapple, 1 quart peas, 6 cobs green corn, 2 sugar canes, 1 yam, 1 water melon, 6 oranges, 1 bunch bananas, 1 quart cassava starch, 2 grapefruits, 1 bunch plantains, 1 quart pimento, (clean), 3 coconuts, (clean), 1 root bitter cassava, 1 pumpkin, 1 quart coffee, (clean), 3 sweet potatoes, 1 root sweet cassava, 1lb. cured tobacco, the best cared working ass, the best cared working mule, and the best milch goat. To meet the expenses it is proposed to ask for donations from the members, and other interested persons, and to charge a small fee at the gate. The following resolution was drawn up and adopted after which the meeting closed :—Resolved, " That the Parent Society be asked to import a ram goat at an early date, and let this Society have, its use."—S. AUG. BLYTHE, Sec.

HANOVER—The quarterly meeting of this Society was held in Lucea on Saturday, 19th May. There was a large attendance. The Hon. President, the Hon. G. A. L. Sanficleben, was in the chair. The Hon. W. Fawcett, B.S.C., and Wm. Cradwick, Esq., were present, and received a hearty welcome. It was agreed that while some Journals might go in bulk to be distributed, a good many would require to be posted to the members. It was intimated that His Excellency had agreed to open the Show, on 1st August, that he had given a donation of £3 3s., and that the S.P.A.J., had given the sum of 30s. for prizes. Settlers' mule in best condition, 8s. and 4s. Settlers' donkey (with hampers) in best condition 8s. and 4s. Settlers' best kept dog, 4s. and 2s. These will be Nos. 12, 15, and 47 on the prize list. Committees were appointed to arrange for the different matters in connection with the Show. It was agreed that the bar be a temperance one. Messrs. J. E. Kerr & Co. were asked to arrange for a demonstration on Jippa-Jappa straw curing and hat making, in line of previous correspondence on the subject. Mr. Cradwick and Mr. Fawcett then addressed the meeting on the subject of Agricultural Loan Banks. A discussion followed. It was agreed to consider the matter at a future meeting. A vote of thanks was passed to the two gentlemen for their interesting statements. Mr. Cradwick has arranged to spend a week investigating coconut trees. It was intimated that the "Jamaica Times" contemplates issuing a Lucea Show number some time in July.—JOHN F. GARTSHORE, Sec.

MOCHO AND BRINTON HILL—This Branch met on Friday, 11th May, in the St. Paul's Schoolroom. J. Rattigan, Esq., Vice-President, in the chair. The minutes of meeting held in the Brinton Hill Schoolroom, on Friday, 6th April, were read and confirmed. Letters from Mrs. Lumb, Secretary of S.P.A.J., in reply to a request of the Branch for financial help in the coming Show, and from J. Barclay, Esq., asking the Society's opinion as to the best way of distributing the "Journals" to its members were read. The Secretary was requested to write thanking the S.P.A.J. for amount granted. It was decided that the best way of distributing the "Journals," is to send them to each member, and not in bulk to the Secretary of the Branch. Mr. Lachlan Wilson was duly elected a member of the Branch. The meeting then discussed plans for the holding of the Show. The prize list as decided on at the last meeting was altered, and it was decided to open the donkey competition to the members of the Thompson Town Branch. To secure sufficient money to meet the proposed prizes, etc., it was decided to ask a number of gentlemen who have interest in the parish for help. Twenty-six were named, and the Secretary was instructed to write to them without delay. The final arrangements were left in the hands of the Managing Committee of the Branch. The meeting then adjourned till the second Friday in June.—J. AUG. RHODEN, Sec.

THOMPSON TOWN—On Friday, 11th May, the regular monthly meeting of this Branch came off in the Thompson Town Schoolroom. The President being unavoidably absent, Mr. W. Reid was appointed to the chair. The minutes of the last meeting were read and confirmed. A letter was read from the General Secretary respecting the distribution of Journals. It was decided on that the Journals be sent to the Local Secretary to be distributed at each meeting. A discussion arose about the getting of the Mill, but it was decided to lay the matter over until the next meeting as the attendance was small, and the shares were not brought in. The getting of a Boar and Ram for the Society's use was brought up and

discussed. It was decided to lay these over until the next meeting when something definite would be arrived at. The Secretary gave some important hints on the making and preserving of manures, and explanation of some important articles of the April Journal. It was pleasing to note the number of members who had won prizes in the late Prize Holdings Competition. The old lie is still afloat, "That the Prize Holdings Competition is a scheme which is wisely planned by the Government to examine lands, find out their value, and afterwards increase Taxes." Many members of this Society have observed the mortality of chickens during the past months of this year, in spite of the special care bestowed on them. During the past week there has been excessive rain accompanied by gusts of wind. Mr. T. N. Davis, winner of 1st prize in the 3rd class, lost by a land slide several "hills of yams" and a bread-fruit tree." All the festivities planned for "Empire Day" were washed out by the rain.

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FAIR PROSPECT.—The monthly meeting of this Branch was held on Saturday, 2nd June, 1906. L. A. C. Brown, Esq., in the chair. The meeting having been opened in the usual way, the minutes of last meeting, also of Committee meeting of the 2nd May, were read and confirmed. *Re* board, the Secretary informed the meeting that he had remitted two pounds, and read Mr. Arnett's letter in which he promises to send the pig as early as possible. Matters concerning its reception, etc., were dealt with, and the committee appointed is to inspect the place where the pig is to be kept, on Monday, 4th June. *Re* competition among members, on 21st June, 1906, it was finally decided to have thirty-six entries altogether, and to expend not more than £4. Competition will be in fruits, vegetables, starches, sugar, poultry, pigs, etc., etc. The Secretary was authorized to get some posters printed and circulated. S. D. Smith, Esq., of Rose Garden, was elected member of the Society.—W. ZECH. BUCKLEY, Sec.

CORRESPONDENCE.

SIR,—Jamaican and other cattle have been imported into Cuba in large numbers, for over eight years. Many cattle, especially those from Jamaica, arrived covered with ticks. I have seen hundreds, perhaps thousands on a single animal, and yet Cubans will tell one there are no ticks in Cuba. At first one doubts the statement, I for one did. I have asked Cubans to explain why Jamaican pastures are alive with ticks, and they claim that Cuba with much the same climate (*it is far colder at nights, and warmer in the days*) is free of ticks. They claim the annual burning of the pastures kills all the ticks. That may be one reason, but I think I have found another. For over two months—which are the worst grass lice months in Jamaica, I have been walking for hours every day, through Guinea grass and Para grass, and have not seen a single silver tick. I have only found three grass ticks during that time (yet for reasons which I do not know), these particular pastures have not been burnt for four years. As for tick-eating birds, they are nearly as scarce as in Jamaica. On the property I have seen two or three Ting-Tings, half-a-dozen black birds, a few quail, and a sort of Starling. But running on the ground, there were numbers of ground lizards, the Cuban variety, which appears like a combination of ground lizard and clucking lizard. But every grass-root has several lizards like the palletta-tip. I believe these lizards eat ticks and grass-lice off the ground, and grass. Being able to walk about grass, without being covered with grass-lice is a pleasure. In parts of Jamaica, after riding through pastures one either has to be rubbed down with kerosene oil, or with Jeyes and water, taking a bath afterwards, one's clothes have to be ironed with a very hot iron to kill the hundreds of grass-lice which adhere to them. In fact grass-lice are so numerous in March on some pens, that people are unable to clean pastures. Tar, oil, and sulphur mixed, if applied to cattle, kill all the ticks. It is not generally known that a single tick produces five thousand grass-lice. I fancied the grass-fires killed the lizards, but such is not the case. I walked over some burnt pastures about three hours after fire had

been put to them. The fact is, the earth is split in every direction, after the long drought (three or four months) and the lizards conceal themselves. As soon as the fire passes over, out they come, and can be seen scudding away through the ashes; some hide in tall trees. I saw one, the Cuban variety of the Iguana (venus lizard) concealing itself, as well as a human being would have done. These lizards (venus) appear to be very intelligent. Snakes (non-venomous) also conceal themselves in the cracks, some get killed by the men. I was rather amused with a black snake, who concealed himself in a stump which held some water; on being touched up, he showed fight, after being out in two he still showed fight, but was unable to spring.

I remain, yours truly, R. J. TAYLOR-DOMVILLE.

(Mr. Domville's communication is very interesting. We still have ground-lizards here, but they are generally to be found running about the yards near houses or on sandy places in the open. From their absence generally elsewhere, we can only conclude that this can fairly be put down to the debit of the mongoose, an animal very often unjustly abused for being everything that is evil, whereas in some respects he has been of service.—Ed.)

Falmouth, 21st May, 1906.

SIR,—With reference to the remarks with regard to Magpies in the May Journal, the accurate and observant naturalist, White, states, "I observed in my garden, that several Magpies came determined to storm the nest of a missel-thrush; the dams defended their mansion with great vigour, and fought resolutely *pro aris et focis*; but numbers at last prevailed, they tore the nest to pieces, and swallowed the young alive!"

In a note on the subject by Capt. Thomas Brown, F.L.S., etc., it is stated, "No kind of animal food is despised by this carnivorous depredator (referring to the Magpie). Young lambs, poultry, eggs, fish, carrion, insects and fruit,—all come within the range of his voracious appetite. He is a great enemy to all young birds; and in many places commits extensive ravages on the broods and eggs of game. In various places of England and Ireland, a reward is given for their heads at the Quarter Sessions.

Again: White says, "The Magpies when they have young destroy the broods of missel-thrushes though the dams are fierce birds and fight boldly in defence of their nests." (Heaven help those birds who do not fight boldly).

William Marwick, Esq., F.L.S., says, "I have seen more than once, a pair of these birds (referring to the missel-thrushes), attack some Magpies that had disturbed their nests, with great violence and loud shrieks."

It is only fair, however, to say that Marwick states that, "Starlings and Magpies very often sit on the backs of sheep and deer to pick out their ticks."

Do you think that this recommendation is sufficient to absolve this feathered *mongoose* from the scathing condemnation of White, Brown and even Marwick?

Yours truly, STANLEY D. ENGLAND.

SHOWS TO BE HELD.

The following Shows are arranged:—

St. Mary, Port Maria, 5th July.

St. Ann, Brown's Town, 1st August.

Hanover, Lucea, 1st August.

St. George, Buff Bay, 1st August.

Trinityville, 1st August.

Rio Minho,—Frankfield, 13th August.

Santa Cruz, 9th November.

Manchester,—Kendal, 28th November.

of meat in public and mainly for purposes of Registration be approved? What good or evil might be expected from it?

F.—Would the compulsory inspection of meat be approved?

1.—In towns?

2.—In country villages?

3.—Is such inspection in your opinion necessary?

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No. 7.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 21st June, 1906, at 11.30 a.m. Present :—Hon. Dr. Pringle, presiding; Hons. L. J. Bertram, W. Fawcett, and R. P. Simmonds; Messrs. D. Campbell, R. Craig, C. A. T. Fursdon, E. W. Muirhead, J. Shore, J. R. Williams, and the Secretary, John Barclay.

An apology for absence was intimated from the Hon. Geo. McGrath, who also intimated that he would be off the island for four months.

Mr. Craig also intimated that he would be away from the island for three months.

Minutes. The minutes of the previous meeting held in April, and which were published in May Journal, were taken as read and confirmed.

Contagious Diseases Animals Law. The Secretary submitted letter from the Colonial Secretary's Office as follows :—

4437-4456.

19th May, 1906.

In reply to your letter No. 194 of the 24th April, I am directed to point out that the draft bill will if adopted, involve considerable expenditure for the employment and transport expenses of Veterinary Surgeons, and for the expenses of stamping out disease, and, while it is obviously the more or less remote interest of the entire community that every local industry or undertaking should flourish, the general taxpayer stands in this respect far removed from the cattle interest whose immediate interest it is that cattle disease should be promptly suppressed.

Accordingly it seems fair that the first cost of proceedings under this draft bill should be entirely or partly defrayed by the interest more immediately concerned, and I am to invite the expression of the opinion of the Society how this end can best be secured.

As an alternative to this bill, vaccination and other precautions by cattle owners have been suggested.

On the motion of Mr. Craig, seconded by Mr. Shore, the following resolution was unanimously adopted :—“That the Board desires to record its protest against the proposal in the Colonial Secretary's letter of 19th May, 1906, viz., that the first cost of proceedings under the proposed Contagious Diseases Animals Law should be entirely defrayed by the stock-raising interest, as unfair to that industry, and especially to the class of small settlers who are largely engaged in it, and who have apparently not been considered in this connection. The Board adheres to its opinion that the expenses of such a law are fairly and properly chargeable to General Revenue.”

should offer three premiums of £10 each for the importation of dual purpose breeds of cattle, viz :—Dairy Shorthorn, Red Poll or South Devon Bulls ; four premiums of £4 each for the importation of rams of milch breeds of goats ; and four premiums of £3 each for the importation of Essex, Poland China or Berkshire Boars. The recent discussion on the subject the Secretary had intimated, had stimulated the idea of private importation, and he had had correspondence which would indicate that there were private parties likely to import for themselves, and the offer of premiums might further encourage them. They suggested that the conditions should be (1) that notice should be given by those intending to import of their intention to enter for these premiums, (2) that the animals on arrival should be inspected and approved by two persons appointed by the Board, (3) that the premiums should not be paid until the animals had been six months in the island.

Mr. Craig moved that the report be adopted subject to the following alteration,—that only one premium should be paid to each importer in each class of stock in any one year. Mr. Campbell seconded, and the report with the alteration suggested, was adopted.

Penkeeping Industry. The Secretary submitted the Report of the Live Stock Committee on the matter of the position of the Cattle Industry referred to them for consideration as follows :—

The Live Stock Committee beg to report that they met and considered the resolution referred to them at the previous meeting of the Board as follows :—

“That in the opinion of this Society, the state of the cattle industry of the colony and the deplorable waste of beef in the several markets of the island, call for enquiry if the cattle industry is to be sustained, and it is resolved that the whole question be referred to the Live Stock Committee, with the object of ascertaining all the circumstances connected with the depressed condition of the industry, and to make any possible suggestions for its betterment.”

The Secretary sent out the following circular to persons interested in the subject :—

Sir,—I have been instructed by the Board of Management of the Jamaica Agricultural Society, to ask you in connection with an enquiry into the present condition of the Penkeeping Industry, to kindly give the following questions your serious consideration and send the replies to me at your earliest convenience :

A.—What particulars can be supplied with regard to the supply and demand for butchers' meat in your district represented in your report.

1.—Does supply exceed demand ?

2.—At what price per 100lbs. estimated are stock sold for butchers' purposes ?

3.—What is the retail price per lb ?

4.—Can you give the price for any local contracts ?

B.—Can you afford any information as to the export of stock that has recently taken place—the number and class of stock exported—the price paid ?

C.—Is the supply of butchers' stock larger than formerly—if so, why ?

D.—Would a heavy trade license on the dealers in butchers' stock be approved ? What good or evil might be expected from it ?

E.—Would a low Retail License for butchers applying only to the exposure

of meat in public and mainly for purposes of Registration be approved? What good or evil might be expected from it?

F.—Would the compulsory inspection of meat be approved?

1.—In towns?

2.—In country villages?

3.—Is such inspection in your opinion necessary?

4.—If recommended what provision would you suggest for the inspecting officer's remuneration?

5.—What officers would you propose for appointment?

G.—What combination amongst producers for the steadying of prices do you think possible? How do you think it might be attained?

H.—What is the lowest remunerative figure at which fat stock can be placed in Kingston per 100 lbs. estimated dressed weights?

The report on the replies followed.

Mr. Craig said he was a member of the Live Stock Committee, but he could not attend the meeting when this report was prepared. He thought the Board would agree with him that it was an exceedingly exhaustive and able document. He, however, thought that they should not accept it at that meeting as it stood, but to defer it until the next meeting, by which time it might be found necessary to amend the report to some extent.

It was agreed not to adopt the report at this meeting, but to circulate it amongst all the members of the Live Stock Committee for any observations that might be considered necessary; and that the matter be brought up at the next meeting of the Board.

Diseased Coconut Trees.

The Secretary submitted the reports of the members of Staple and Minor Products Committee on the matter of disease of coconut trees, submitted to the Board for consideration as per the Colonial Secretary's letter, dated 20th February, published in March Journal.

Mr Fawcett said he had recently paid a visit to Lucea to examine again the trees he had examined several times before, and he had been in touch with the experiments Mr. Cradwick had been making on the diseased trees. This had confirmed his conclusion that the disease was due to either bacterial or fungoid disease, and it could be checked by the use of Bordeaux Mixture or the use of fire. He had been asked by the Board of Agriculture to write a leaflet about the matter, which would be submitted at the next meeting of that Board. The Secretary could submit this leaflet for their information, and then it would be published. He thought it was essential that whenever the disease had killed a tree, the top of the tree, at least, should be burned.

Mr. Campbell asked if Mr. Fawcett could give him any information about the lady whom he saw by the newspapers was in the island enquiring into this disease.

Mr. Fawcett said this lady was a bacteriologist from the United States Department of Agriculture at Washington. She was an assistant to Dr. Irwin Smith, who had interested himself in this matter of diseased coconut trees for some time past, and had already paid a visit to Cuba to investigate it. Dr. Smith meant to come to Jamaica himself, but having to go to Europe he sent Miss Hedges down. She would take some specimens to Washington to be properly examined, and tested by himself and other experts there, and they would very probably be able to find out exactly what the disease

was, as they in Jamaica had not been able to do so. He did not think that the cutting down and burning of diseased trees should be made compulsory by law as it would be hardly feasible to enforce it. The Board decided to reply to the Colonial Secretary in these terms.

Export of Stock. The Secretary read the following letter from the Colonial Secretary. —

3928-4262.

5th May, 1906.

In reply to your letter, No. 200, dated the 20th ult., I am directed to state that the Collector-General had already, at the request of the Hon. J. V. Calder, included "cattle" in the returns supplied by him and published weekly in the newspapers by the Chamber of Commerce, and monthly in the "Jamaica Gazette." The Collector-General states that "horses and mules" can readily be added to those returns, and this will be done.

Mr. Miles states, however, that it is not practicable to discriminate the descriptions of cattle exported, and I am to express regret that the wishes of the Board of Management in this particular cannot be met.

Jamaica Handbook. The Secretary read letter from the Editor of the Jamaica Handbook as follows:—

Government Printing Office, Kingston, 2nd May, 1906.

SIR,—In reply to your letter of 27th inst., I beg to state that the Hon. Collector-General will be requested to prepare a list of Stock-breeding Pens as suggested by you, for inclusion in the next edition of The Jamaica Handbook.

I have the honour to be, Sir, your obdt. servant, Jos. C. FORD.

Medals for Cotton Cultivation.

With regard to Sir Alfred Jones' offer of medals for cotton cultivation, the Secretary stated that as there was no time to be lost to prepare for the planting season for cotton, he, at the request of the Staple and Minor Products Committee, prepared rules to govern the offer, and he submitted these to Mr. Haggart, as Sir Alfred Jones' representative, who had approved of them, and he had informed the Colonial Secretary of this. These rules and conditions were published in the current Journal which was before them.

The Board confirmed what had been done in the matter.

Cotton.

The Secretary submitted letters from the Colonial Secretary and from Sir Daniel Morris with regard to using only selected disinfected cotton seed, to be got from the Imperial Department of Agriculture, and stated that information on the matter had been given in the Agricultural Journal, and in the "Bulletin," so as to bring the matter to public notice in good time before the planting season.

The Board confirmed this action.

Hurricane Insurance. The Secretary read letter from the Colonial Secretary's Office as follows:—

4808-3318.

31st May, 1906.

With reference to your letter No. 3580, dated the 26th March, last, I have the honour to point out that no report on the scheme of insurance against hurricanes has yet been received from the Board of Management of the Jamaica Agricultural Society, and to ask you to be so good as to say when one may be expected.

The Board directed the Secretary to send the Colonial Secretary the report of the Special Meeting of the Board, held to consider the subject, and to state that the Board was not in a position to speak definitely about the matter until they had a report from Mr. Head concerning his proposals as applied to Jamaica.

Sav-la-Mar Branch. The Secretary submitted resolutions from Savanna la-Mar Branch, asking the Board to consider the matter of assisting their Show to be held on the usual date, 1st January, by giving a small grant, and also asking that a Local Instructor be appointed for Westmoreland.

The Secretary was instructed to reply that there was no money allocated for grant to Shows now, and that the matter of a Local Instructor would come up for consideration when the matter of the £500 from Elder Dempster & Co. was referred to them by the Colonial Secretary.

Resignation of Mr. Hirst. The Secretary read letter from Mr. Hirst, Local Instructor, resigning his position, as the work could not be done on the money, and in the execution of his duties during the late wet weather, he had lost one horse, and had another disabled. He had intended to resign earlier, but waited till the completion of the Prize Holdings Competition, and also on possible developments due to the proposed compromise with Elder Dempster & Co.

After discussion, it was agreed to ask Mr. Hirst to suspend his resignation until the matter of the Instructors in connection with the Elder Dempster & Co.'s compromise was settled, and in the mean time, they would give him a month's leave of absence from his duties.

The Secretary intimated that he had expected a letter from the Government on the subject of the £500 from Elder Dempster before the meeting, and he had just telephoned to ask about it, and was told that the letter had been posted to him a short time before.

The Board decided that it could do nothing without having the matter before them, and there was no option but to delay the matter another month.

Visits, Secretary. The Secretary submitted a report of the visits he had made since last meeting, as follows:—Red Hills, St. Andrew, to form a new local Agricultural Society; North-West Clarendon, to distribute Prize Certificates won in the Small Holdings Competition, and to speak on the care of Small Stock, and their proposed Show. Two meetings arranged at Æolus Valley, St. Thomas, and Above Rocks, St. Catherine, had to be postponed owing to heavy rains.

Affiliation. Applications for affiliation by the Local Agricultural Societies, lately organised, were submitted:—Red Hills, (St. Andrew), Retreat, (St. Mary), Hampden, (Trelawny), and were granted.

Instructors' Reports. The Reports of the Local Instructors for April and May were submitted. The Secretary stated that the gist of them had been published in the newspapers.

New Members The following new members were elected:—

Major John H. Clifford, Salvation Army Officer, Church St., Kingston; Hugh Ramsden, Hampden; F. A. Dean, Mahoe Hill School, Annotto Bay; Mrs. A. G. Heron, Cross Keys; Wm. N. Baird, West Chester, Pa., U.S.A.; Dr. A. R. Todd, Black River; E. W. F. Reed, Salvador Farm, Guapiles, Costa Rica; James Wilson, Caymanas, Spanish Town; the Hon. Secretary Salem Department Agricultural Association; Revd. S. C. Ashton, Bethlehem, Malvern

The meeting adjourned till Thursday, 19th July, at 11.30 a.m.

HALF-YEARLY GENERAL REPORT.

THE Half-Yearly General Meeting of the Jamaica Agricultural Society, was held at the Office of the Society, No. 4, Port Royal Street, Kingston, on Thursday, 21st June, 1906, at 12.30. Present :—Hon. Dr. Pringle, Vice-President, presiding ; Hons. L. J. Bertram, W. Fawcett, R. P. Simmonds ; Messrs. D. Campbell, R. Craig, C. A. T. Fursdon, E. W. Muirhead, J. Shore, J. R. Williams, Adam Roxburgh, A. B. Ventresse, Ralph Cocking, A.C.L. Martin, and the Secretary, John Barclay.

The minutes of the Half-Yearly General Meeting having been published in February Journal were taken as read and confirmed.

I have the honour to submit my report for the half-year from 1st October, 1905, to 31st March, 1906, together with the annual statement of accounts for the year ending 31st March, 1906, as follows :

BOARD OF MANAGEMENT.—Five meetings were held during the six months, there being no meeting in November. During the preceding half year there were three meetings, making the total for the year 8. The attendance of the members of the Board of Management was as follows :

	Second Half-Year.	Previous.	Total.
His Ex. Sir J. A. Swettenham	3	3	6
Hon. Lt.-Col. C. J. Ward	0	1	1
Hon. Dr. Pringle	4	2	6
Hon. W. Fawcett	5	3	8
Hon. H. Clarence Bourne	4	2	6
Hon. L. J. Bertram	2	1	3
Bishop Gordon*	1	2	3
J. Allwood*	0	1	1
Jno. Cameron*	2	0	2
Dugald Campbell	4	3	7
Robert Craig	5	3	8
C. A. T. Fursdon	4	3	7
Ralph Hotchkin	3	2	5
E. W. Muirhead	3	2	5
Hon. H. T. Ronaldson	0	1	1
J. Shore	1	0	1
Hon. R. P. Simmonds	3	0	3
R. A. Walcott	0	2	2
J. R. Williams	1	1	2
The Secretary	5	2	7

Mr. Cameron was absent from the island for three months.

During the half year Mr. Allwood resigned as a member of the Board. The Hon. Geo. McGrath was elected to his seat.

The seat of Bishop Gordon who has left the Island has become vacant according to rule 14.

The Secretary was on leave of absence from the beginning of April to the end of July last ; during two months of this period he was engaged in connection with the preparation of the Jamaica Court at the Crystal Palace Exhibition in the staging of exhibits there, and as one of the Jamaica Commissioners thereat.

Sir Daniel Morris, Commissioner of the Imperial Department of Agriculture for the West Indies, was present at the meeting held in September.

The chief subjects dealt with by the Board of Management and its Standing Committees during the year were as follows :—

SEVILLE ORANGES.—Further consideration was given to the matter of supplying Seville Oranges to the United Kingdom, and as an experiment. 10 boxes and 26 barrels, supplied by Hon. H.E. Cox, Mr. E. W. Muirhead, and Mr. H. G. Sturridge, were shipped for trial to the following firms in London :—James Keillor & Co., Ltd., Charles Southwell & Co., Ltd, through Messrs. Gillespie Bros., London ; and to Robertson & Sons, Buchanan Bros., Stewart and Young, Gray Dunn & Co., Glasgow, and Cairns & Co., Paisley, through Messrs. P. MacLachlan & Co., of Glasgow. The results of the Glasgow experiments have been encouraging, the firms there stating that our oranges would be quite suitable for marmalade-making if supplied at the same price, or even at a little higher price than Spanish fruit, seeing that we can supply them earlier in the season, when they could take large supplies. The firm of John Buchanan & Bros., in particular, reported that the Seville Oranges sent were suitable in every respect for their requirements, and further that the peel was also suitable for their trade in orange peel. On the representation of the Society, and to encourage this trade, the Royal Mail Company, whose freight rates via New York were 6s. per barrel and 3s. per box, agreed to reduce their freight to 5s. per barrel and 2s. 6d. per box. It is hoped that a regular trade will be begun next season.

BANANA FIBRE.—The Secretary, as instructed, having sent samples of banana stems and leaves to Mr. James Anderson, Arbroath, who wrote he had a cheap machine for extracting fibre, that gentleman reported that in the stems there were 6 per cent., and in the sheathing, free from the core, not less than 12 per cent. of fibre, enough he considered to make the extraction of the fibre profitable. As there is some question as to the exact percentage of fibre in banana leaves and stems, and Sir Daniel Morris having advised that he was having fresh experiments made in Barbados, it was resolved to await these experiments.

ORANGE CONFERENCE.—Owing to continual representations of the harm done to the orange trade by shipments of immature and unfit fruit, it was resolved to hold a Conference on the

subject to find out what might be done to help the trade, and members of the Merchants Exchange and some of the principal orange growers and shippers were invited to meet the Board. The questions of legislation in the direction of one Trade Mark only, the prohibition of the export of unfit fruit, and of the inspection of fruit at the packing house or shipping port, were all discussed, and the majority of those present at the Conference being against any legislation, except as regards Trade Marks, nothing definite resulted.

TICK DESTROYERS.—The Secretary having received samples of a new liquid tick destroyer from Singapore, had it tried, and reported, that although it was most efficient in killing ticks, lice and all parasites, it was not more so than some of the washes in present use and would be more expensive.

SULPHUR BLOCKS FOR TICKS.—The Secretary having arranged with a firm in England to make blocks, composed of sulphur and salt in different proportions as a cattle lick, with a view of preventing ticks from fastening on the cattle, these were sent out for experiment, but the quantity not being sufficient, no decided opinion as to their effectiveness was obtained. A further supply of sulphur blocks has been asked for, for more extended trials.

GOVERNMENT CHEMIST.—The position of the Chemist as regards the Society was discussed. It was held that the Society having assisted in his appointment, and having made certain contributions to his salary and to the Laboratory, members of the Society had a claim to his services, but the Government decided that since 8th May, 1900, when the Chemist was placed on the fixed establishment of the Colony, his services were no longer at the disposal of the Society except by the consent of the Government.

EXHIBITION OF FRUIT.—At the request of the Secretary of the West Indian Committee, the Board instructed the Secretary to get up exhibits of Jamaica fruit to be shown at the Royal Horticultural Society's Exhibition of Colonial Fruit in London. The first collection of fruit sent was unfortunately late in arriving, through the detention of the Royal Mail Steamer. The second collection consisting of oranges, grapefruit, lemons and pineapples, was very favourably reported upon, and these exhibits received awards of three silver and one bronze medal.

TORONTO AND HALIFAX EXHIBITIONS.—At the request of the Government, the Board considered the matter of Jamaica being represented at the Toronto and Halifax Exhibitions, and resolved to undertake the representation if the Government would give a small grant for the purpose. This, however, was not made, and accordingly it was decided the Society could not move in the matter.

WEST INDIAN AGRICULTURAL CONFERENCE.—At the request of Sir Daniel Morris, it was agreed to arrange for the holding of a West Indian Agricultural Conference in January, 1906, in Jamaica, but on account of the alteration of the itinerary of the Royal Mail

Steamers making the voyage from Barbados and Trinidad 10 and 9 days instead of 4 and 3 days, the Conference was abandoned.

CONTAGIOUS DISEASES ANIMALS LAW.—The Government having submitted a draft of a proposed Contagious Diseases Animals Law for the opinion of the Board, the Board reported the Bill to be unworkable, but as it was unanimously considered desirable to have such a Law, a special committee consisting of members of the Board of Management, members of the Board of Agriculture, together with penkeepers invited to co-operate, revised the clauses of the Bill, with the view of amending the draft, so as to make it acceptable to the Government and the public. This amended Bill was submitted to the Government, who thereupon asked how it was proposed to meet the expenditure of money involved in some of its provisions. The Board suggested that General Revenue could properly be charged with it, seeing the Law was in the interest of the entire community.

ELDER DEMPSTER & Co's, INSTRUCTORS.—The Government having insisted on the appointment of the Instructors provided for under the Direct Line Contract or the payment of an amount as an equivalent, Messrs. Elder Dempster & Co. offered £500 per annum in lieu of their Instructors, and the matter being referred to the Society for consideration, the Board recommended that this sum should be accepted.

PRIZE HOLDINGS COMPETITIONS.—The Prize Holdings Competitions were held in Clarendon, St. Catherine and Portland. In Clarendon, there were 93 entries, judged by Mr. Cradwick and Mr. Hirst; in St. Catherine there were 56 entries, judged by Mr. Cradwick; in Portland there were 90 entries, judged by Mr. Hirst and Mr. Arnett. The awards of the Judges and the special prizes were confirmed, and the Competitions in the three parishes were considered satisfactory and successful. It was decided that the Competitions for next year, which will begin a new round of the island, will be held in St. Ann, Trelawny and Manchester.

HURRICANE INSURANCE.—The Society was asked by the Government to give an expression of its views as regards insurance of crops against hurricanes, and a special committee considered the matter, but as it was advised that Mr. Christopher Head of the firm of Henry Head & Co., Insurance Brokers, London, who had taken up the matter, was about to visit the island, the matter was held over pending his arrival.

PRODUCE PROTECTION LAW.—The matter of the produce buyers 2s. license was considered, and the Secretary was instructed to get the opinions of some of the principal produce merchants in the country. The Board decided that it was advisable the Law should be amended so that the 2s. license should be abolished, and that produce should only be purchased on the premises of the grower, or at properly constructed licensed buildings or on the public markets, and the Government was so advised.

THE JAMAICA HANDBOOK.—The Board recommended to the Editors of the Handbook that if it were practicable, a list of stock-raising properties might be added to the list of estates given therein.

INTRODUCTION OF FOREIGN BIRDS.—The Government having asked the opinion of the Society as to the introduction of Starlings, Magpies and other foreign birds, some of which had been sent out by Sir Alfred Jones, and some imported by Mr. Domville, as insect destroyers, the Board recommended that no foreign birds should be permitted to be brought into the island, in the absence of definite knowledge as to their habits, or what their habits might become.

LIVE STOCK.—It was resolved to sell the Bulls presented by Sir Alfred Jones, and the Shorthorn Bull "Crystal Ray," the Aberdeen-Angus "Alaska" and the Aberdeen-Angus "Enterprise" were accordingly sold, the proceeds amounting to £65, being at the credit of the Society, to be used in the interest of the Live Stock Industry. As regards the King's Bulls in the charge of the Society, the Hereford Bull "Sylvester" has been placed at Knockalva and Ramble Pens, in Hanover, and the Shorthorn "Desmond" is in St. Andrew, but is in rather poor condition, and will be transferred to a cooler climate. The Pony Stallion "Sir Gerald," also ordered to be sold, was standing for season 1905, at Darliston in Westmoreland, but was brought to St. Andrew on 21st September. He had a very poor season in Westmoreland, but has done fairly well in St. Andrew. He is not yet sold.

IMPORTATION OF LIVE STOCK.—The Board considered the matter of importing fresh stock with the proceeds of the sale of the Bulls, and the Secretary recommended that a Dairy Shorthorn Bull, Milch Goats and Essex Pigs, should be imported. The matter is under consideration.

JAMAICA TOBACCO.—The Government submitted copies of correspondence with Mr. F. V. Chalmers who visited Jamaica, to make enquiry into the Tobacco Industry, and who reported that at the request of the Lords of the Admiralty, he had blended 8,657lb. of tobacco for experiment in the Navy, and he thought the production second to none; this blend was undergoing trial among the seamen of the Fleet. It was reported later that while the seamen enjoyed the cigarettes made of Jamaica tobacco, the pipe tobacco blend was not favoured.

INDIAN CATTLE.—Information as to the prices of Indian Cattle was obtained through the Government Emigration Agent in Calcutta as follows:—First cost Hissar Bulls £13 6s. 8d. to £16, Heifers £10 to £13 6s. 8d., transport charges to Calcutta £7 per head, freight and other expenses from there to Jamaica £33 6s. 8d. per head. Further information was being asked from the Madras Government as to the cost of Mysore and Nelore cattle, but the price of these was expected to be approximately the same as quoted.

LOCAL INSTRUCTORS.—The Local Instructors continue the same.

Mr. Arnett taking the whole of St. Ann and Lower Trelawny, giving four days a week at a salary of £125 per year ; Mr. Hirst taking Upper Clarendon and Upper Trelawny at a salary of £80 per annum and giving two days a week to the work ; Mr. J. T. Palache acting in Manchester at a salary of £100 per annum, giving four days per month. It is hoped that the £500 offered in lieu of the Elder Dempster Co.'s Instructors will enable an extension of work of Local Instructors to be made. There is a great call for Local Instructors from all parts of the Island, and a greater demand for the services of the present instructors than it is possible for them to give, in the time allotted and the remuneration allowed them. The Secretary keeps in touch with their work, and makes suggestions as to carrying it out.

SHOWS.—The only large Show held during the half-year was at Black River, but many of the Branch Societies are now holding small district shows ; and such have been very successfully held at Mocho and Thompson Town in Clarendon, and Springfield in St. James. The Society for the protection of animals very kindly gave some of these Shows grants for the best cared mules, asses, donkeys and dogs, and it is hoped it will continue to do so, as it is a very much appreciated encouragement in the better care of domestic animals.

MEMBERSHIP.—The number of members on the roll is 498, of this number 43 new members have been admitted during the year, 56 members were struck off owing to subscriptions being unpaid, mostly foreign members.

BRANCH SOCIETIES.—A list of the local Agricultural Societies affiliated as Branches, with the number of their members, strictly revised, is now published at the end of each Journal. There are 50 Branches, with a total membership of 2,580. Of these, the following have been admitted during the year :—Rio Minho Valley, Thompson Town, Mocho and Brixton Hill, all in Clarendon. All these Branches pay 5s. per annum as their registration fee ; their local Secretaries require to send lists of their members who have paid their local subscription each year, and keep the Secretary advised as to any changes. Journals are posted to each name on the list, except to a few Branches where it is more convenient to send Journals in parcels for distribution at local meetings. New Local Agricultural Societies continue to be formed throughout the island ; there is always correspondence going on with districts about starting more, but it requires an Instructor or the Secretary to visit these places to get them organised. For want of sufficient Instructors to visit the affiliated Branches regularly, and to encourage and stimulate their work, a good many find it hard to keep up interest in them. It is surprising indeed that so many do keep active without being visited at all.

JOURNALS.—The number of Journals issued to members is

500, to exchanges, advertisers and complimentary 185, Branch members 2,580, kept for Office use 100.—Total 3,365.

OFFICE WORK.—There were 3,031 letters received during the year, and 5,317 dispatched under the following headings :—Board of Management 225, Branches 249, Small Stock 248, Cattle and Horsekind 427, Poultry 198, Exhibitions 366, Journals 306, Hurricane Insurance 64, Instructors 104, Fruit 196, Prize Holdings 499, Potatoes 153, Members 406, General Products 364, Shows 268, Seeds 166, Sundries, including information about Jamaica 1,048.—Total 5,317.

OFFICE.—The office is felt to be a little out of the way by some members, and in very heavy rain it leaks very badly, which the patching it is occasionally subjected to does not seem to help. More suitable premises have not however been found yet.

FINANCE.—We commenced the year with a credit balance of £147 12s. 3d., and we finish with a credit balance of £172 6s. 10d. The receipts for subscriptions and advertisements exceeded the estimates a little, while the Stallion failed to pay his way. The entries for Prize Holdings exceeded the estimate. In the Experiment Account, it will be seen that the experimental shipment of Seville Oranges sent to Glasgow and London, went without cost to the Society, and paid those who sent them the sum of £6 3s. 10d. Samples of banana leaves and stems sent for the Banana Fibre Experiment, Sulphur Blocks and Tick Wash received for experiment, cost the Society only 3s. 5d. On two consignments of fruit sent to Exhibitions of Colonial Fruit in London, ocean freight from New York and sundry expenses in England had to be paid, so there was only a small balance of 10s. 5d. received from the sale of fruit over and above expenses. This is carried to the credit of future Fruit Exhibitions. The Royal Mail Co. and the Direct Line both gave free freight for the carriage of exhibits for the Banana Fibre Experiment. The allocation for the staff has been slightly exceeded, also the allocation for stationery and printing, owing to special printing in connection with Committees of enquiry into Contagious Diseases of Animals, Hurricane Insurance and the Elder Dempster Contract, etc. The allocation for advertisements was insufficient. The purchase money for the sale of the three bulls is lodged in the Bank of Nova Scotia and is not included in the net balance shown above.

Seeds, plants and breeding stock were provided and supplied to the value of £148 8s., and many references made on behalf of enquirers to those who could supply the articles wanted. There has been increasing enquiry for selected seed corn, native and imported, and which has been supplied. There has been larger enquiries for vegetable seeds than ever, and private traders intimate that they have sold more seed than in previous years. The well-known English firm of Sutton & Son is now represented here. I have seen equally good results from English and American seeds.

The cultivation of Potatoes has been encouraged, and reliable

seed for growers imported at a very moderate price. Local production should soon be able to supply local wants, if there was only an organized method of distribution to prevent over-stocking the market during a short period after each crop is lifted. This it is hoped will be arranged in the largest producing centre, say Devon, in Manchester.

The cultivation of Guinea Corn has not been increased, and there was actually no seed to be got in the island for spring planting—most growers seem to have used all their own seed, depending upon the Society to get more, and others had their crops spoiled by rain. Guinea Corn is more useful than Great Corn for feeding poultry, in the raising of which so many more people are interested now than formerly, so patches of it at least ought to be planted more freely, especially in dry districts.

Requests for the Secretary to visit Branch Societies and new districts to form new local Societies, or to take part in Shows, are more frequent than ever, but with so many important matters before the Board and Committees, requiring prompt attention, and often a good deal of research and enquiry, it is difficult to make fixed engagements in the country so far ahead as is required. The island being now in so much closer touch with the United Kingdom, Canada, and the United States, there are constantly visitors with business of importance calling at the office, and it would be disappointing on both sides if the information wanted were not supplied. Thus, although visits to country districts are useful and stimulating, the Branches, especially the more distant from Kingston, must understand that it is not lack of interest, but lack of opportunity that the Secretary is unable to visit so often as he would like.

The only Show attended during the half year was the Black River Show, held on 9th November, and the only meetings those under the auspices of the Appleton Branch at Siloah, Christiana Branch at Christiana and Devon, and Upper Trelawny Branch at Albert Town; also Moore Town, Above Rocks, Hampstead and Porus.

Statement of accounts is appended.

JNO. BARCLAY, Sec.

IN Bavaria (one of the wealthiest states of the German Empire) there are vast tracks of fen country, and these have been reclaimed for cultivation so far back as the beginning of the last century. In 1904, for the first time, prisoners were employed on this reclamation work, and with satisfactory results. It is found that the land, suitably drained, manured and tilled, produces, besides valuable peat, potatoes, turnips and grass. In 1904-5 the Bavarian Government granted £403,068 for the furtherance of agriculture.

ESTIMATES.—JAMAICA AGRICULTURAL SOCIETY FOR THE YEAR, 1906-07.

EXPENDITURE.				£	s.	d.
Secretary's Salary	...	...	...	250	0	0
Clerks, Typist, and Office Messenger	...	...	...	184	0	0
Local Instructors (3)	...	...	...	320	0	0
Rent and Taxes	...	...	...	48	0	0
Office Furniture	...	...	...	5	0	0
Printing Journal	...	...	...	315	0	0
Postage and Carriage	...	...	...	25	0	0
Stationery and Sundry Printing	...	...	...	35	0	0
Prize Holdings	...	...	...	100	0	0
Stallion Expenses	...	...	...	40	0	0
Bulls	...	...	...	5	0	0
Telephone	...	...	...	7	4	0
Travelling	...	...	...	80	0	0
Advertising	...	...	...	3	0	0
Sundries	...	...	...	40	0	0
Total				£	1,457	4 0

INCOME.				£	s.	d.
Subscriptions	...	...	...	£90	0	0
Advertisements	...	...	...	40	0	0
Stallion Fees	...	...	...	40	0	0
Affiliations	...	...	...	10	0	0
Small Holdings	...	...	...	7	10	0
Journals	...	...	...	1	0	0
Sundries	...	...	...	1	0	0
				£189	10	0

ABSTRACT.

				£	s.	d.
Balance at credit 31st March 1906	...	...	.	172	6	10
Estimated Income 1906-07	...	...	...	189	10	0
Government Grant	...	...	...	1,250	0	0
				<hr/>		
				1,611	16	10
Estimated Expenditure 1906 07	...	...	...	1,457	4	0
				<hr/>		
Estimated balance at 31st March, 1907	...	...	...	£154	12	10
				<hr/>		

STATEMENT OF ACCOUNTS FROM 1st APRIL 1905 TO 31st MARCH 1906.

RECEIPTS.

ESTIMATE.

	£	s.	d.
To Balance from 1904-05	100	9	11
" Subscriptions	63	14	1
" Advertisements	10	18	6
" Stallion Fees	10	0	0
" Affiliations	13	14	6
" Prize Holdings, Entries	2	16	9
" Journals Sold	6	11	3
" Refunds	6	3	10
" Experiments (see contra)	4	17	0
" Exhibitions (see contra)	5	8	8
" King's Bulls—Refund of expenses	214	13	6

To Deposits	1	17	0
" Pigs	19	1	6
" Sheep	16	11	8
" Poultry	28	16	6
" Seeds and Plants (Sundry)	3	1	6
" Cotton Seed	36	6	6
" Coconuts	37	2	9
" Potatoes	156	18	7
" Port Royal Mountains Show	78	1	4
" Board of Agriculture	7	10	7
" Miscellaneous	30		
" Bulls, purchase money of	449	7	11
" Shorthorn, "Crystal Ray"	25		
" Aberdeen-Angus "Alaska,"	1,250	0	0
" Enterprise" 10			
" Grant from Government			

£2061 13 8

BALANCE.

Balance as per Statement of Accounts	...
By Deposits in hand—Poultry	...
—Coconuts	...

EXPENDITURE.

ALLOCATION.

	£	s.	d.
Secretary's Salary	260	0	0
Clerks, Typist and Messenger	184	0	0
Local Instructors	320	0	0
Rent	48	0	0
Office Furniture	5	1	6
Printing Journal	315	0	6
Postage and Carriage	25		
Sundry Printing and Stationery	35		
Prize Holdings (see contra fees)	100		
Stallion	40		
Bulls	5	5	6
King's Bulls (see contra)	7	4	8
Telephone	7	4	8
Travelling—Secretary and Staff	80		
Instructor for Special work	20	0	0
in Portland	3		
Advertising	40		
Miscellaneous	3	5	3
Exhibitions (see contra)	6	7	3
Experiments re Fruit and banana fibre, etc., (see contra)	1	4	10
Drayage	4	6	7
Repairs to Typewriter	5	5	0
Secretary's and Clerks' Guarantee Premiums	16	5	4
Sundries	65	0	0
Deposits:	357	9	0
Bank of Nova Scotia—Receipt for purchase price of Bulls	422	9	0
Sundry Deposits	1,833	16	4
Balance in Bank at 31st March, 1906	193	2	10
Balance in hand at 31st March, 1906	14	14	6
	207	17	4
	£2,061	13	8

£207 17 4
£20 10 6
35 10 6
£172 6 10

JNO. BARCLAY, Secretary.

Mr. Fawcett said he noticed that although this was June the Report only came up to 31st March, the end of the financial year, but he thought the report of the business of the Society should be brought up nearer to date.

The Chairman asked whether there was any necessity for Half-Yearly General Meetings at all.

Mr. Craig said these Half-Yearly General Meetings were decided on in order to give members of the Society two opportunities in the year of attending to discuss any agricultural matters of importance which might crop up and might be of vital interest to members of the Society, and to give the members of the Board the benefit of their opinion.

On the motion of Mr. Roxburgh, it was agreed that the Half-Yearly General Meetings be held in April and October instead of January and June as at present, to bring the meeting near to the date of the report.

Mr. Ventresse said, that looking at the return of the attendance of members of the Board, it did not appear that they were taking very active interest in the affairs of the Society. He would like to know if there was any rule in the constitution of the Society how often members must attend meetings.

The Secretary read Bye-Law 14, stating that if any member of the Board be absent from his seat for six consecutive ordinary meetings, without leave of absence being granted by the Board, his seat may be declared vacant, and the Board of Management may fill the vacant seat until the next general meeting. The Secretary said that the only member to whom this would apply at the present time, was His Lordship Bishop Gordon, who had left the island.

Mr. Craig said that considering some of the members represented, and came from distant parts of the island, the meetings of the Board had been fairly well attended, and at any rate papers for the different Committees were constantly in circulation for their opinions.

Mr. Fawcett said that some of the most distant members who could not come to Kingston often did a great deal of Committee work, and valuable work too, like Mr. Williams.

Some members thought that the report which was in their hands, should have been circulated among all the members previously.

The Secretary stated that it was usual to publish the report in the newspapers before the meeting, and it had been published. It was to save some expense that a copy was not sent each member before the meeting as it would be published in the Journal afterwards.

The Chairman thought it was a proper thing to publish these reports beforehand. It was done by all Insurance Companies and Building Societies, and the object was to prepare those interested for what they would be called upon to discuss. It was open to correction at the meeting.

On the motion of Mr. R. S. Cocking, seconded by Mr. Roxburgh, the report was adopted.

Mr. Craig said, that with regard to the seat of Bishop Gordon on the Board of Management, the Society deeply regretted the necessity of having to fill the Bishop's seat. There was no one who was held in greater respect by the members of the Board than Bishop Gordon, and although he had not formally intimated his resignation to the Society, he was in a position to say that they need not expect him to resume his seat on the Board. He thought as a well deserving compliment to Bishop Gordon, and to the large body of people whom he represented in Jamaica, it might be advisable to ask his successor, the Very Revd. Father J. Collins, S.J., to take his place on the Board of Management. He had not the honour of Father Collins' acquaintance, but he believed him to be a man who was interested in the practical affairs of the Island, and very earnestly interested in agriculture. In support of his suggestion, he would say that the Roman Catholic Body in Jamaica had four industrial farms in different parts of the island. They had one at Donnington Castle in St. Mary, one at the Clavers Orphanage in St. Catherine, one at Kintyre in St. Andrew, and a pen at Reading, in St. James.

Mr. J. Shore seconded the motion of Mr. Craig to invite Father Collins to the Board, and it was unanimously adopted.

Mr. Shore moved, "That this General Meeting of the Jamaica Agricultural Society desires to record its great regret at the retirement of the Right Revd. Bishop Gordon from the Board of Management of the Society, and its sincere sympathy with the cause which has necessitated it."

Mr. Craig seconded, and the motion was unanimously agreed to.

Mr. Cocking asked whether the Society was going to import milch breeds of goats which he thought the most necessary kind of stock for the island.

The Chairman explained that the Board had that day prepared a system of premiums to be offered for the encouragement of the importation of certain classes of stock, including milch goats.

The meeting then adjourned.

DISEASE OF COCONUT TREES.

For some years a serious complaint has been made of coconut trees dying in more than usual numbers, and from causes that could not be defined. Contrary to the run of troubles the disease was not found in the roots, but on the growing bud; the heart of the trees, —the 'cabbage' as it is called locally. This was affected by what was locally called "Black Rot." The leaves of the coconut tree begin to get yellow and wither away, when the heart of the tree is examined the cabbage is found to be brown, slimy and evil smelling. When all the leaves die off, the head of the trees stand bare with only a black stump at the top. The trouble has been often checked in a rough and ready manner by firing the dried leaves hanging from

the top of the tree. This, however, often killed the tree outright, and at the best it took two years for the tree to recover. Investigations have been made here by the Director of Public Gardens, the Travelling Instructor, Mr. Cradwick, and Prof. Earle, formerly of New York, but now chief of the Agricultural Department in Cuba. Just lately, Miss Hedges, assistant bacteriologist to Dr. Irvin Smith of the U.S. A. Department of Agriculture, has been here making further investigations in Hanover, and will make a report on the subject. The experiments carried out by the Director of Public Gardens and Mr. Cradwick have, however, proved that the disease can be checked, when not too far gone, by spraying Bordeaux Mixture into the heart of the tree. What Bordeaux Mixture is, and exactly what it is used for was described in last Journal, June. As the spores of this disease can be carried from tree to tree by the wind and may travel long distances, all owners of coconut trees are specially requested to make strict observation of their trees, and immediately they see the leaves yellow, and falling down more than is natural, they are asked to communicate with the Director of Public Gardens or to the Secretary. It is, of course, to be understood, that leaves of coconut trees yellow from more causes than this, the soil may be swampy or it may be from poor land, or the trees may have been injured through some outside cause, so that when writing a full description of how the tree is growing should be sent, that is, what kind of land it is planted on. If the disease is recognised as Bud-rot and it is too far gone to be treated, the tree should at once be cut down, and the head of it, at least, burned. This is such a serious matter to the owners of coconut trees, that we hope that everybody who possesses any, will take the matter seriously. It may be nothing for the owner of a few trees to lose them, but it is a vital matter, if through the carelessness on the part of an owner of one or two trees, worth only a trifle, disease spreads through a large grove. Now, those interested in coconut trees, should not leave observation on the subject to the other fellow, but each should make himself an inspector and keep a sharp lookout for the Bud Rot, both on his own trees and all he sees around.

P I G S.

In June Journal there was enclosed an advertising leaflet (paid for of course), issued by Colonel Pinnock, of Kingston, stating that he is in a position to buy a certain class of pigs for the making of bacon hams for which he has a good market, if he can get the kind of hog that will suit him. We should like to see him get this, but we are afraid the kind of feeding ordinarily given to our pigs will not provide good bacon pigs. By good, we do not mean the flavour—that the open air life, free range, and clean food our pigs usually get, gives to a high degree, but they do not yield as a rule the percentage of ham a bacon factory in the north would look for.

And we mean this article to point out the cause of this. We have the right breed of pigs in the Berkshire and Poland China which are common here, and Tamworths (red pigs) have been brought here lately, though we do not know how they have thrived, but they ought to make a good cross with common pigs. Hitherto, the only market we have had, has been the local demand for pork,—and fat pork at that, for all our common feeding stuffs have been fat making,—starch or sugar foods. First and foremost green bananas; almost wholly starch; ripe bananas, principally sugar; cocoe heads, sweet potatoes, cassava,—all starchy; and corn, largely starch. These foods alone, or in combination, are not the kind to make the bacon hog. Native corn will, however, finish off the pigs, that is if used freely for a month previous to marketing, it will tend to harden the flesh, and make it heavy and solid, and for Colonel Pinnock's purpose every hog would require corn feeding. There is another foodstuff now freely used in some districts, that is, coconuts. It is rich in protein, which is flesh-making, but it is also rich in oil which makes fat. It is a waste to feed coconuts whole, but if the oil is first extracted for local use, the resulting "trash" or poonac, is exactly the kind of food required to balance the ordinary starchy food, and make the good bacon hog. The best foods for flesh-making are peas and beans, but these, even cowpeas, are not cheap enough here to be fed freely, but there is no food grown locally better to be fed in combination with starch foods, if we had them in plenty.

PREMIUMS ON IMPORTATION OF LIVE STOCK.

THE Agricultural Society has resolved to offer the following premiums on live stock imported, viz : —

Three Premiums of £10 each for the importation of purpose breeds of cattle, viz :—Dairy Shorthorn, Red Poll, or South Devon Bulls.

Four Premiums of £4 for the importation of Rams of milch breeds of goats.

Three Premiums of £3 for the importation of Essex, Poland China or Berkshire Boars.

The following are the conditions :

1.—That only one premium be paid to each importer in each class of stock in any one year.

2.—That notice must be given by those intending to import of their intention to enter for these premiums.

3.—That the animals on arrival must be inspected and approved by two persons appointed by the Board.

4.—That the premiums will be paid only after the animals have been six months in the island.

We trust that this offer will encourage those who have been corresponding with us about importing such classes of stock, to make arrangement to import soon. The best time to bring out

stock is between November and March, but no time should be lost in making arrangements, as the premiums are limited in number.

It is recommended that young bulls be imported, age from 9 to 15 months, but the younger the better, as there will be less risk in acclimating. It is always best to arrange for imported animals to remain in the hands of a Veterinary Surgeon in Kingston for two weeks to a month after landing. They are then under close observation, and can be put through a mild course of preventive treatment against tick fever.

The classes of animals recommended for premiums, especially cattle, have been carefully studied. A strong strain of Indian blood has been put through many herds for the purpose of hardening the stock, that is, making them both more tick-resisting and disease-resisting. Then as there is a desire, in Manchester, St. Elizabeth, Hanover and St. Ann particularly, to improve the milking qualities of their stock, so that they may be able to take advantage of the present butter factory and to prepare for any further development in that direction, and yet not lose anything in respect to the beef qualities of their herds, a most important consideration, the three dual purpose breeds were fixed upon, viz :—Dairy' Shorthorn, Red Poll or South Devon Bulls, which were also the breeds that some penkeepers themselves had been considering the advisability of importing. The cows of these breeds are free-milking animals, and are large-framed, with a disposition to lay on flesh of the highest quality when wanted. They are docile, easy-tempered animals, and are exactly the breeds wanted to cross with half or three-quarter-bred Indians, and the cross of either breed mentioned will improve at one cross the milking powers, the quality of the beef, and the docility of the progeny.

BOARD OF AGRICULTURE.

THE Board of Agriculture arranged for a general course at the Laboratory for managers and owners of sugar estates, who had to pay their own expenses, from June 26th till June 29th, four lectures to be given by the Government Chemist and the Fermentation Chemist, with demonstration in the Distillery and the Laboratory.

It was also arranged for a regular three weeks course from July 2nd to 20th inclusive for operating distillers and managers in direct control of distilleries, 10 scholarships of £10 each to be awarded.

Owing to the recent heavy rains, however, the crops on estates are so backward that many distillers intimated that they were unable to attend the Course as arranged, and accordingly it has been postponed to October 8th to 20th.

The Government Chemist, it has now been arranged, will go on leave for three months from July 5th.

The Hon. Director of Public Gardens, Mr. Fawcett, left the Island on 21st June on leave of absence for three months.

COW PEAS.

Cow Peas are wanted for two different purposes here. Sugar estates want them for green manure, and so wish a variety making plenty of vine—small growers want them for the grain. We do not know anything better for making vines than the old Jamaica Quick Increase or Cockle Increase, which is rather slower in growth than the imported varieties of cow peas, but cannot be beaten for profuse growth. The Black Eye is an old standard variety, and suits where the grain is wanted, and also vegetation to make humus. For seed nothing beats the “Wonderful,” a brown pea, which makes excellent soup. It has also a good vine growth, and altogether for Jamaica, is better than the variety usually supplied now to anyone importing, the “Clay” Cow Pea. We do not find this as good as the “Wonderful” in any way, yet now it is difficult to get this latter variety, as it was found tender of growth in the United States, except in the extreme south, we believe. Hence it should, and does suit our climate.

LEAFLETS ON AGRICULTURE.

THE following leaflets on agricultural subjects are in stock and copies can be sent to any one :—

Cultivation of Pine Apple, by Chas. Eugene Smith.

Tobacco Cultivation, by T. J. Harris.

Instructions for Planting Cotton, by T. J. Harris.

Notes on Cocoa for Small Settlers, by W. Cradwick.

Notes on Handling and Packing of Citrus Fruits, by R. L. Young.

The Way to Improve the Small Settlers' Holdings, by C. L. A. Rennalls.

Notes on Coffee, from Laborie's Coffee Planter.

Notes on the Budding of Mangoes, by T. J. Harris.

The Orange Weevil, by Stuart Panton.

Agricultural Loan Banks, by J. T. Palache.

Notes on Budding of Cocoa, by T. J. Harris.

Hog Cholera, by John Barclay.

COTTON PESTS.

THE cotton worm is an important pest on cotton, but can be controlled by the exercise of sufficient care. A sharp outlook must be kept for its first appearance and poison used promptly. Paris green and lime have given good results, both in controlling the pest and as an economical poison. The method in vogue is the use of Paris green and lime at the rate of 1lb. of Paris green to 6lb. of lime, or, when measured, 1 part of Paris green to 12 parts of lime,

Paris green may be used without lime, and it should not require more when used this way than when used with lime. About 1lb. of Paris green per acre for each application is sufficient to kill the worms. The point to be observed is an equal application over the plants. The cost of the Paris green and lime, and of the labour for applying, has been placed at about 2s. per acre for the entire season; but when carelessly applied with oat sacks and tin shakers, and things of that sort, the cost has been as high as 8s. to 10s. per acre. This is far too much. The cost this year will be a trifle more on account of the high price of all arsenicals. The Acme Powder Bellows is sold in the United States, retailed at 75c. each. This has been used in the Sea Islands during the past season with very satisfactory results. It is obtainable from Messrs. Gillespie Bros. & Co., 4, Stone Street, New York, at about \$3.00 per dozen, not including packing and freight. It is a simple machine and should be economical and save time in application. It will work better when the poison is used without lime.

Too much stress cannot be placed on careful supervision as to the appearance of the worm and the use of poison on the plants. Green arsenoid will probably prove a good substitute for Paris green, and it is expected will be slightly cheaper. It is lighter than Paris green and will probably go further in application. Arsenate of lead is expensive to apply, because it must be spread, and it is slow in its action. It adheres to the leaves very well and does not burn.

Experiments with the different poisons will be carried out during the coming season.

Cut Worm.—The cut worm has been a pest in some places during the past year. It attacks the young plants when they first come up. It may be controlled by the use of a poisoned bait made by adding 1lb. Paris green to 50lb. bran, mixed to a mash with molasses and water. This is applied at the time of planting the seed, a small quantity being put in each hole or on the surface of the ground where cotton is to be planted. Both methods have been tried with satisfactory results.—“Agricultural News.”

IMPERIAL DEPARTMENT OF AGRICULTURE.

WE have received the Report from Sir Daniel Morris, the Commissioner of the Imperial Department of Agriculture for the West Indies on the work of that department. This shows the great amount of valuable service that has been done. We take the following quotations from it :—

SUGAR.—British Guiana.—“The total area under cultivation in sugar-cane in British Guiana is 78,003 acres, including 2,500 acres cultivated by small farmers. This is an increase of 11,095 as compared with 1896. The average cost of producing one ton of centrifugal sugar, including 14 per cent second sugar and 25 gallons

of rum, was £10 19s. 2d. in 1903 as compared with £11 9s. 2d. in 1896. In 1897 only small areas of land were occupied with canes of other varieties than Bourbon, while at the present time about 14,000 acres are planted with them. The result of the experiments on a large scale with seedling and other canes than Bourbon recorded during the last three years 'indicate an increased yield per acre of from 12 to 20 per cent. over that of the Bourbon.' "

Barbados.—About 35,000 acres of canes are reaped annually in Barbados. According to a return prepared by Mr. Bovell in 1903, the Bourbon Cane, owing to the prevalence of disease, has been almost entirely discarded of late years. Referring to B. 147, it was stated that on one estate during the crop season 1903-5, this cane, as plant cane, had given 320lb. per acre of merchantable sugar more than White Transparent. On the same estate there had been reaped as ratoons during two years an average of 44 acres of B. 147, and this cane had given 599lb. more saccharose per acre than the White Transparent. In regard to the manurial experiments at Barbados, the results confirmed those obtained in previous years. They indicate that an ordinary application of farm-yard manure, together with artificial manure, was more effective than a very large application of farm-yard manure without artificial manure, also that the application of nitrogen both to plant canes and to ratoons was followed by a profitable increase in the yield. The application of sulphate of potash was generally profitable. On the other hand, phosphatic fertilizers either had no effect upon the yield or caused a diminution.

Leeward Island.—In Antigua there are about 8,000 acres under cane cultivation. The principal varieties are the White Transparent (under which is included Naga B., Mount Blanc, and Caledonian Queen), B. 147, D. 95 and B. 208. The area under Bourbon is reduced to about 204 acres. By means of the introduction of new varieties of canes, Dr. Watt states, "The planter has now an opportunity of selecting his canes for particular soils and situations or for early or late planting. In this way he may not necessarily select that cane which has done best on the average of the whole of the experiment, but his own observation may have led him to see that some particular cane will prove suitable for some special conditions, and he selects suitable canes accordingly. In St. Kitts the total area under canes is estimated at 7,000 acres."

Jamaica.—In regard to seedling canes, Mr. Cousins states, "That the best of the seedlings from Demerara and Barbados have been carefully tested in Jamaica. Two of these stand out in a prominent manner. "Barbados seedling No. 208 appears well suited to all parts of Jamaica, and is probably the best cane now available. At the Hope Experiment Station in 1905, a crop of this variety was harvested, yielding over 70 tons of cane, capable of yielding 7 tons of sugar per acre. Upon light soils in seasonable or irrigable districts, Demerara seedling No. 95 has proved a great success. This cane has given double the yield of crystallized sugar per acre as com-

pared with the Jamaica cane, and upon a commercial scale under these conditions." Further, "There are districts in the Island where the seedling canes already at our disposal are capable of giving a return of at least 30 per cent. more sugar per acre than the Jamaica cane."

Cacao Industry.—It would appear that the total exports of cacao from these Colonies (West Indian), have risen from 335,817 cwts. in 1898 to 494,873 cwts. in 1902. These figures indicate that cacao plantations are being very considerably extended throughout the West Indies. The exports of cacao from Trinidad are of the annual value of £1,000,000. Those of Grenada are of the annual value of £250,000. Jamaica comes next with exports of the annual value of £80,000. In Grenada, on an experimental plot on an estate, the yield of cacao has been increased by judicious manuring, from 5½ bags per acre to 8 bags in the four years, 1900-1904. In St. Lucia, as the result of the establishment of experimental plots, Mr. Hudson reports that the planters in that island are now importing basic slag and sulphate of ammonia, and pruning and forking have now become a recognised part of cacao cultivation."

Cotton.—The total area planted in all the islands in 1902 was 500 acres. This was increased in 1903 to 4,000 acres. During the year 1904 the area planted in Sea Island Cotton was 7,243 acres, and in other varieties 4,438 acres, making a total of 11,681. The Imperial Department of Agriculture supplied at cost price 35,700 lb. of seed of the best variety of Sea Island Cotton. At present there are fifteen well-equipped cotton ginneries in working order. The prices obtained for West Indian Cotton during the past season have ranged from 12d. to 18d. per lb. The average price was 14½d. per lb. It is now recognised that West Indian Sea Island Cotton is an article in good demand, and the industry shows every promise of being established on remunerative lines. St. Vincent and Barbados have been the most successful islands; the climate in the latter is suitable, but the soil in the former is very much superior. Good results have also been obtained in Montserrat, St. Kitts, Nevis, Antigua and other islands, but in Jamaica very little has been done.

Rice.—During the four years (1897-1901), there were produced in British Guiana a total of 46,747 tons of paddy (unhusked rice), equivalent to 34,141 tons of clean rice, of the approximate value of £370,000. In the report of the Board of Agriculture for the year 1904-5, it was stated that the area under rice cultivation had undergone a large increase. The total area in 1904-5 was 21,920 acres as against 16,670 acres in the previous year. The yield of paddy had increased from 17,701 tons to 22,597 tons. The average yield of paddy in British Guiana on lands properly irrigated and properly drained, was stated to be about 28 bags (of 120 lb. each) to the acre. Such yields, when obtainable, would be exceedingly remunerative to the grower. At Trinidad, the cultivation of swamp rice has grown rapidly in recent years. The first favourite is a long-grained rice, called by the East Indians, 'Joyiya', which seems identical with

'Nagra' rice. It is usual to plant all swamp rice in nurseries early in June, and to plant out into the field early in July, but this variety has a tendency in good land to grow very tall and suffer from lodging. To prevent this, it is sown more widely in the nursery and kept longer there before replanting. In Trinidad native rice is generally sold in the husk. The price at present is \$2 per barrel, but it varies with the price of imported rice.

Lime Industry.—The exports of limes, concentrated lime juice, and essential oil of limes (obtained from the West Indian lime tree, *Citrus Limeta*), from Dominica, are of the annual value of £45,370. Lime juice and oils are exported from Montserrat of the value of £8,090, limes and lime juice from Jamaica of the annual value of about £6,000. Trinidad also exports lime juice.

Rubber.—During the last seven years the possibility of establishing rubber plantations in the West Indies has received attention. The first systematic attempts in that direction have been made in Trinidad and Tobago. It is estimated that in the latter there are about 90,000 trees of the Central American Rubber (*Castilloa elastica*) already planted. Small number of similar trees exists also in Jamaica, Grenada, St. Vincent, St. Lucia and Dominica, in all of which favourable conditions exist for a rubber industry. In some localities the trees are being used as shade for cacao.

Sheep.—What is known as the woolless sheep of Barbados (probably of African origin) has been distributed to the other Colonies, where it is regarded as very hardy and profitable. It is not uncommon for well-fed wethers to weigh 120lb. to 130lb. (live weight) when about 15 months old. A number of these sheep have been supplied to the United States Department of Agriculture for trial in the Southern States. It would appear that Barbados woolless sheep are particularly profitable to keep on account of their prolificness. A ewe generally has two or three lambs at a birth, four, and even five, being not uncommon occurrences. The ewes usually have no difficulty in rearing their young, though naturally some assistance in the form of nutritious food, such as bran or cornmeal, is necessary when a ewe has more than a couple of lambs. By many breeders too, they are considered more suitable to local conditions, by reason of their woolless coats being untroubled by "burrs" which are so common in most pastures.

FRUIT GROWING.

PROFESSOR S. W. Fletcher, of the Michigan Agricultural College, in addressing a meeting of the Michigan Fruit-growers, made a strong plea for better elevation and drainage of the Michigan orchards. He said they were too low to get the best results. An elevation of a few feet would count for a great deal in the setting out of trees, and in maintaining an orchard. He had noticed the large proportion of sod orchards. In the last ten years there had been a revolu-

tion in the mode of keeping orchards ; fruit farmers in the country are ploughing up their orchard sod and putting the land under cultivation, and he recommended this to the Michigan growers. He spoke of the greater need of more cultivation that would put trees in better condition, and thus enable them the better to resist disease. He was not prepared to combat the mulching mode ; he said it prevailed to a large extent, but he urged the necessity of more cultivation. He believed in good cultivation as well as spraying ; with more of the former it may be possible to do much less of the latter. With pruning, fertilization and proper cultivation, the trees will the better be able to resist disease by giving them better constitution. He told the growers that from what he had seen and heard in the State there is a widespread discouragement. Fruit raising is at a low ebb and on a decline. He said he had heard much of over-production, but he reminded the growers that it has been ascertained that of each one hundred trees that are set, scarcely more than 5 per cent. reach fruition, all of the others failing from one cause or another. There are many things that cause the hopes of a planter in a tree to be blighted. In New-Jersey it has been ascertained that only three per cent. of the trees that are set out fully justify the hope of the grower. In one way or another the others fail.

Professor Fletcher urged the growers to put their personality into fruit growing, and here he brought in the cause of a great deal of the trouble that has come to the Michigan grower. The shipping of inferior fruit to the Chicago market has caused untold damage. The grower should determine to raise only the fruit that will sell ; and there is always a market for good fruit. A man that will determine to win along that line will have success. He said that he had ascertained reasonably well that not more than from 5 to 10 per cent. of the growers are making money. It was not conditions but the man that would remedy this matter.

There was a strong sentiment in favor of a movement to compel every shipper to put his name and address on each basket of fruit that he packs and ships, the plan that is now in vogue is that the shipper stencils a number on his package so that only himself and the commission merchant know who the shipper is, so that every grower in the State suffers from the packing and shipping of inferior fruit. Another object of the bureau of information is to secure better shipping facilities and rates that will enable the growers to distribute their products to many markets. The shipments last year by rail were large, and with better results than by dumping untold quantities of fruit on a single market."

Merit is comparative, so is ignorance. There are degrees of both. Thus, whether it is the raising and marketing of fruit or grain or animals, every farm paper published anywhere is always insisting on better care and system in connection with every process in stock-raising or cultivation or preparation of products for market. There is no finality in knowledge.

In Jamaica, we are beginning to appreciate this. Once let a man feel discontented with the littleness of his knowledge, and the limitedness of his experience, and he is a man who will make progress.

The problems of Jamaica on the pen or plantation are fundamentally the same as on farms elsewhere. Our orange trees require to be elevated in planting and not set deep; nearly all our cultivated lands, and particularly oranges and cocoa and bananas, require more complete drainage. Our trees require more cleaning, more pruning out of useless wood. If it does not pay to do that, it does not pay to have the trees, and it cannot pay to have the land.

NOTES ON RAISING COCOA PLANTS.

BY W. CRADWICK, Instructor in Agriculture.

(Continued from June "Journal.")

Planting Cocoa Seeds at Stake.—With this method as with all others, there is nothing like a good start. Select your pods and seeds in the way described for raising the plants in beds. Prepare in the field where the young plants are to grow a hill like a potato hill for each future plant in the same way as described for the former method. Take *one* good seed and bury it on the top of the hill not more than three-fourths of an inch in depth. If possible, cover over the hill lightly with a little rotten or half-rotten trash. Unless the weather is very, very dry, it is better not to attempt to water the seeds planted in this way. Never water them in this way unless the land is very light without the covering of trash has been first placed over the soil.

The best cocoa soils in Jamaica are apt to cake on the top when watered by rain or artificially, unless covered over with trash as recommended, and this very often results in the plants breaking their backs. The soil by caking on the top, prevents the seed being pushed up into the air, and causes the stem of the plant to grow in a semi-circle, and such plants are a long time before they make satisfactory growth. Unless the shade of the bananas or other plants among which they are planted is fairly heavy, it is well to plant one or two cocoas; two or three gungo peas, or some other quick-growing plants as a temporary shade for the young cocoa. Another good plan is to take two or three young calabash switches; stick them in the ground round the young cocoa tree, and lace them over the top, they will usually grow, form a slight shade, and also protect the young plants from that "arch fiend," the man with the hoe. When it is desired to clean the land in which these young cocoa plants are growing, it is always wise to select a careful man or woman to let them go systematically through the fields, and see that no climbers have fastened themselves round the young plants, or when the land is being cleaned, the labourers are very apt to pull the heads off the young plants when cleaning up the land.

Probably, the most important condition with relation to the

successful growing of cocoa plants by this method, is that the seeds should be put out into the ground at an early stage of the growth of the shade crop, while there is still that freshness and vitality in the soil so necessary for the successful growth of a young and delicate plant.

If bananas are planted, November, December, January, February, March, the cocoa seeds should be planted, September, October, but I do not think this system can compare with that of raising the plants in beds and bamboo pots, and instead of setting out the seeds at this stage of the growth of the bananas, set out a strong healthy well established plant, such as these should be, if raised in beds and bamboo pots. Of course, the initial outlay with planting at stake is smaller, but cheap starts do not usually result in brilliant endings.

The disadvantages of this system are, that it is impossible to carry out the same rigid process of selection which can be done by the other method, in the number of plants which are damaged and destroyed in cleaning the fields while the plants are still young.

Plant only one seed to a hole.

Go carefully round the field after the first ten days planting and supply any which may not have grown, this will be found to be very few if the work has been carefully done ; in any case the agency which would have destroyed one seed would have destroyed two. Do not attempt to supply by seeds, more than once, but send to the Public Gardens and buy plants in bamboo pots, for future supplies in that field.

ANTHRAX OR SPLENIC APOPLEXY.

ANTHRAX, or Splenic Apoplexy, as it is generally called in Jamaica, is a contagious disease caused by a microbe, the scientific name for which is *Bacillus Anthracis*. Human beings and all animals are liable to take this disease, but here it is found chiefly in cattle, mules, pigs, and sometimes sheep and horses. The disease shows itself suddenly, it is very fatal and death usually happens within 48 hours. It is one of the common contagious diseases occurring in most cattle-rearing countries, and it happens here and there at odd times in Jamaica, but it has never here yet spread quickly from animal to animal, and from place to place ; that is, it has not been epidemic. It may run through the pigs in a locality where they have fed on the carcass of an animal that has died of Anthrax, and this is put down to hog-sickness or hog-cholera. Like Black-leg,—which, however, is a separate though similar disease, Anthrax happens mostly in wet weather, or when stock are kept on rich, damp, pastures.

Symptoms.—A beast, which a short time before appeared to be well, is found dead or is noticed to be in a sick condition, standing apart with its head down, shivers running through it, its breathing heavy, and its nose and skin hot. If it is seen with its back arched

and blood passing, in loose, sloppy dung, these are very decided symptoms of Anthrax. It may also bleed at the nose and mouth and the eyes are often swollen and filled with tears. The animal gives way in its hindquarters. A little later its body will lose its heat and become cold and clammy. The animal will have shivering fits and then roll over, and after struggling, as if in convulsions, die. If no animal has been seen in this condition, but a dead beast is found with the carcass swollen and with blood at the nose and anus, these are symptoms of Anthrax having been the cause of death. It is often called "Splenic Apoplexy," because if the carcass is opened, the spleen will be found swollen and black. It is, however, the height of folly to open such an animal as this helps to spread infection, and the disease may attack a man through a scratch in his hand when he will almost surely die.

Carcasses of dead animals or any dead animal found, should be burned at once, and if the burning is not complete, the remains with the earth around, should be scraped up and burned again. The place should then be limed and fenced in, as the disease germs may still be on the spot; and all the stock should be removed to a different pasture.

"Prevention is better than cure," and in wet weather where pastures are rich and damp, or where the disease has once occurred, stock should be kept in the driest pastures. When one case happens, a successful way to prevent more, is to put up all the stock that have been with the animal attacked, and starve them for two or three days, taking the opportunity to dose them right through with Epsom or Glauber's salt, at the rate of four ounces for a calf, half a pound for a yearling, one pound for a two-year old, and 1½ lb. for a cow.

Vaccination by means of a special vaccine has been found to prevent this disease, and stock-keepers who wish information on this point should write to the Agricultural Society.

THE DUAL PURPOSE CATTLE FOR MILK AND BEEF.

THE dual purpose breed, the combined milk and beef-producer, ought to be anxiously sought for by dairymen and penkeepers throughout the island. The two breeds are bidding for dual purpose distinctions, *viz.*, Shorthorn and Red Poll. The literature of the time abounds in argument supporting the Shorthorn as a dual purpose breed. It is the writer's opinion that the Shorthorn has the best claim in the world, to adaptability for milk and beef. I am advised that in England the milking Shorthorn is a reality, not an animal for future years to develop. It is a fact that certain strains have taken on what is best described as dairy form or conformation, the inevitable result of long time feeding and breeding for profitable and economical dairy production records, and report that they find first Shorthorn cows coming to America as having given six gallons of milk per day and over on grass alone.

The Red Poll breeders have taken the hint and are pushing their breed as the ideal general purpose animal in strong terms, and are using the statement of Hon. James Wilson, Secretary of the U. S. Department of Agriculture, in which he says, "From data at hand it is shown that the claim made for the Red Polls are the dual purpose breed is fully established, and after an experience of thirteen years I know of no breed comparable to them to meet the requirements of the general farms."

Of the beef breeds, I think the Red Polls of next importance, considered from a dual standpoint. This is a comparatively new breed, and as closely resembles the Devon as the Polled Durham resembles the Shorthorn. As dairy animals, so far as records serve, the Red Polls rank well up with the Shorthorns in the United States of America, but it is generally understood that in the beef end they do not approach the Shorthorns. In a general way, I would draw this distinction. As the Shorthorn to-day exists, beef predominates and milk is a secondary consideration. With the Red Polls, milk is represented as of greatest importance, and beef a secondary consideration. This holds good so far as their dairy qualities are concerned in the States.

I do not propose discussing the relative merits of the Shorthorn and the Red Poll. The milking strains of these breeds, the former in the Columbian dairy test, and the latter in the model dairy at the Pan-American Exposition, have made enviable reputations as milk-producers. The references suffice to support the fact, that in each breed there is the foundation upon which can be established a pure breed of dual purpose animals, which will meet the hearty approval of dairymen and penkeepers of the island. I must say that the Red Poll cattle do make excellent crosses on the other breeds, especially the Shorthorn. It rather improves both breeds, the Shorthorn being large-boned and rather rough, the Red Poll smaller boned and smooth. The cross gives an excellent animal equal to Red Poll in style, and the Shorthorn in size, and better weights than either breeds.

What is wanted is a fair average quality of milk from the cow, that will raise a good large calf that can be fattened and sold for a reasonable price, and these are breeds to procure it from.

CHAS. E. EARLE,

"Ashton," Black River, 21st June, 1906.

ENSILAGE.

REGARDING the articles in April and March Journals, on the making of silage and the silo, in the first article we pointed out that those who wished to experiment, need not go to the expense of erecting an elaborate wooden or stone silo. Silage may be made by the stack method which is simple, although there is quite a lot of waste unless it is carefully done, and held in shape, but the pit

method is probably better in a hot, dry climate just where silage would be most used. We give a short article from the Transvaal Agricultural Journal on this. A pit 48 by 12 by 8 holds 60 tons of silage. "I think it might interest some of your readers if I gave an account of the way I made ensilage for over twelve years in Ireland. I commenced with building stacks, but the difficulty of keeping the sides straight, especially after heating had commenced, and the height of the forking caused me to look for an easier method, so I simply had a pit 18 feet x 18 feet x 9 feet deep dug in the ground, the sides perfectly plumb. The soil happened to be a dull soft sand with thin veins of clay sufficiently cohesive for the sides to remain firm and yet act as natural drain for the liquid. The ensilage was made from the grass from orchard plantations and waste places. The pit was usually a month being filled, the work being done at odd times, but the temperature was not allowed to rise above 165 degs. F. As soon as it came near 160 degs. several tons of fresh cut grass were added, which compressed that which was already in the pit and prevented the temperature rising further. I found the wetter the grass was when put into the pit the better.

Ensilage goes into very small bulk, and the pit was filled to the top six or seven times before complete. The last time it was carried up three or four feet above the ground, left three or four days for the temperature to rise to 160 degs., and then weighed by placing boards on and covering with about 18 inches of earth, which brought the top down level with the ground. Any cracks appearing in the earth covering were closed up.

The advantages of a pit over a stack are :—

1. No difficulty in keeping the side straight.
2. Much less waste. If thoroughly tramped round the sides during filling, which there is no difficulty in doing in a pit, there will be little or no waste round the sides. When the pit was really full I used sometimes to put a quiet horse on to do the tramping.
- 3 No high forking.
4. Much easier weighed when complete.

My ensilage used invariably to turn out very well and was eaten greedily by horses, cattle and sheep. I found it very good for ewes at the lambing.

IMPORTATION OF STOCK.

WE have had a good deal of correspondence on the subject of importing poultry, goats and pigs, and some members wish to import these classes of stock. As, however, the larger the importation the smaller the expenses on the average, we should like to hear from more who might import. From the United Kingdom we recommend the following classes of fowls :—Orpingtons, Wyandottes, Minorcas and Indian Games, and with these, all demand for wet and dry districts, meat and eggs can be well met. Plymouth

Rocks are not what they used to be, but still are favourites with some people. The only ducks we recommend are Indian Runners and Muscovies. Turkeys are better got from Canada than from England. The breeds of pigs we recommend are Essex, Poland China, Berkshire, and Large Blacks, the two former from the United States, and the two latter from the United Kingdom or Canada. The Essex is a close-quartered pig which will suit to cross with the old-fashioned China and the progeny can be turned out to graze; the Poland China and Berkshire are long-bodied pigs which need much feeding to be profitable. The Essex would suit better for the local pork market, the Poland China and Berkshire and the Large Blacks or either, according to feeding, for making hams. There had been much interest taken in the matter of milch goats, but the prices of pure breeds, Maltese, Nubian or Anglo-Nubian, Toggenberg, if pure-bred, are very high. However, the mixture of these with English goats as used by those who keep them for strict utility purposes, and not for the show-yard, would be good enough for us, and yet cost as high as anybody would probably like to go. These cost 40s. to 60s. on the spot, and the expenses, rail to Bristol, freight here, customs duty, 10s., veterinary fee, 4s., will amount to about £5 more. A deposit for the estimated cost and expenses requires to be lodged here before we undertake any importation.

SEASONABLE HINTS.

WE have had most peculiar weather for nine months past. There were no heavy October rains, but over three-fourths of the island there have been steady rains right on without any dry weather in February and March, as is usually expected. Then we had heavy rains in the latter part of May and the first fortnight in June—not the worst kind of season rains, but steady downpours. But curiously, some of the driest parts of the island along the southside, have had the most continuous rains of any part, whereas the dry parts in Trelawny and St. James did not have them, and the northside of the island generally has not had nearly as much rain as the southside; and the lowlands had far more rains than the hills.

The crops on sugar estates in Westmoreland and Vere are all late in being taken off, because the rains through May and June have so interfered with estate operations, while the crops are much heavier than usual. In Trelawny and St. James the cane crops are said to be short. Operations on banana estates have also been kept back and transport has been done with difficulty. Weeds grew up in the fields, and there was no chance to keep them down, and although they did not affect the results of the present crops, they may make everything late; the weather and weeds will probably affect the results from next year crops appreciably. Yet our exports of sugar and bananas are likely to show up well this year, but we fear they will be smaller next year.

Pimento trees blossomed later than usual, and the heavy May rains coming on, played havoc with the pollen. If they had come two weeks later, they would have done no harm, as fertilisation would have taken place. The crops of pimento will be very short indeed.

Coffee crops will also be short in Manchester, St. Ann and Clarendon, and the lower elevations generally.

The orange season is going to be very straggling, as there will be mid-season fruit, and very early fruit running into each other. Thus, although the crops are not large, in fact rather scanty, if we get favourable weather to the end of July, the fruit in Manchester will be of good size, and we should be able to ship quantities right on through August and September. In St. Ann, a small mid-year crop has spoiled the chance of a large and early autumn crop.

CULTIVATION.—All the banana ratoon suckers to come in next year, should be over man high to the break of the leaves at this time. Where they seem to be late, held back by the lateness of this year's fruit, it is better to sacrifice suckers that are late to fruit now, when there are good suckers to push forward for fruit next spring. Where bananas are slow to grow, the little suckers meant to fruit in the spring of 1908, should just be appearing through the ground now. In the hottest places, the end of August would do to select these, and thin out what are not wanted, and under very favourable circumstances—rich soil, regular rains, high cultivation even later. It is better to allow several of these little suckers to grow, so that one, two or three, according to the richness of the soil or the best, may be chosen to be left to grow.

The seasons have been very favourable for pineapples, and there are good crops coming in now, and prices in London have been very favourable to the careful shippers of the right varieties. The varieties which do best all round, are Ripley and Bullhead; the latter is practically the only one we have that suits for preserving. It is the hardiest and easiest-grown variety and the best shipper.

The regular rains all through the year have suited the cocoa crops to a nicety, and the trees have borne exceedingly well,—a record crop in many places, but the rains have not suited the curing of it by small settlers, and much of what we see brought into the stores is damp or mouldy, or both.

The crops of ginger were rather short, not only because less was being planted, but because the yield was smaller, but stocks being very low in the markets abroad, there has been a good demand and prices were at a paying figure. The seasons have been favourable to give the new crop a good start.

The corn crops made a very bad start in the wet districts, but the season just suited the crops in the drier districts, like the plains of St. Elizabeth and South Manchester, but latterly, the alternation of sunshine and showers, has brought on corn remarkably well every where, and there will be splendid crops on an average.

The present time makes a good opportunity for growers to go through their fields, and select the stoutest stalks, and the best cobs on these for their seeds for fall planting. A little time spent in this way in the careful selection of the best cobs, will be amply repaid by the larger return the selected seeds will yield.

Nurseries should now be prepared very carefully for the planting of tobacco seeds, and the land intended for planting the tobacco should have a rough breaking up now.

July is the month to prepare for the second half year crop of corn, peas, cotton, etc., which should be planted between the 15th August and 15th September, the sooner the better.

We desire to point out again to the value of guinea corn. The stalks are not only a good forage for milking cows, but the grain is also good for cows, and there is nothing better to feed chickens and poultry generally.

It ought to be planted as near August 15th as possible in most districts, although there may be some exceptions. It has the drawback of the seed being taken away largely by birds, but as among these are usually many pigeons, these may be shot, and as food, yield more value than what they have stolen.

Altogether, up to 30th June, the crops though not entirely favourable in every branch, have been above the average and the year should be prosperous. We always look upon the agricultural year as ending on the 30th June, as the season for sugar should be over then, the good banana season is over by then, the tobacco season is finished, and a new one about to commence, ginger and coffee are practically over, and the bulk of the crops marketed, crops of cocoa are being marketed, while we have a pretty fair idea how our orange crops are going to turn out.

All stock to be imported should be arranged for now so as to arrive here about November, or the three months following. November is best before the steamers get busy with tourists.

COMMENTS.

KING'S BULL.—Applications are desired for the use of the King's Hereford Bull, at present stationed in Hanover. Terms may be had from the Secretary.

IMPORTED MEAT STUFFS.—The recent revelations regarding tinned and barrelled meats sent out from the Chicago packing houses have not astonished us. The revelations would do us good if it stopped the importation of the 50,000lb. of bacon, at the cost of £1,667, the 168,000lb. of lard costing £2,456, and the 2,256lb. of sausages costing us £75 8s., the 6,429 barrels of salt pork costing £18,000, and the 6,000 barrels of salt beef which cost us £13,000, all of which we are foolish enough to import and use,—at least the labels on the barrels show these things to be bacon, lard, salt pork, sausages and salt beef, but what they really are is another question. There is nothing creditable to us in the importation of these

foodstuffs, and certainly the results cannot be good for our health. The salt beef imported alone represents the carcasses of 2,000 head of cattle, which could have been killed and eaten here to better advantage, than sending them alive to Cuba—at less than cost price often, and then importing salt beef. Our advice is to let no barrelled beef nor pickled pork of such doubtful antecedents disturb our digestions and horrify us in our dreams. Here we can see on the hillsides and valleys the actual cows and the real pigs, and in the market place we can recognise them, even in death—we mean in the flesh. In future, we should not let ourselves be cowed by foreign beef of the nature of Egyptian mummies, but go the whole hog, and pacify penkeepers, our consciences and our digestions at one stroke, by consuming only home-raised beef and pork.

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PINEAPPLES.—Some years ago there was quite a boom in planting pineapples, and a good deal of money was lost in the business. Still, we were sure there was a good market for our pines in the United Kingdom, if the trade on both sides were properly handled. There are several cultivations now which seem to be well managed, and the fruit from which have been realising good returns. Ripley pines have been fetching a little over 1s. on an average each, and large Bullheads (or Red Spanish) up to 1s. 6d.

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BOARD OF MANAGEMENT.—The following members of the Board are off the Island just now : Hon. H. C. Bourne, Hon. W. Fawcett, Hon. Geo. McGrath, Hon. R. P. Simmonds, Robt. Craig, Esq. All these gentlemen left in June and will be away from three to four months.

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MEDALS FOR COTTON CULTIVATION.—As stated in our last number, Sir Alfred Jones has kindly offered one Gold and two Silver Medals for the three best cultivations of Cotton in Jamaica during the year ending 31st March next, and it was left to the Society to draw out the rules. These were framed and published in last Journal, and as this is the middle of July, planting ought to take place next month. Those therefore who intend entering, should not delay in notifying us of their intention to compete, according to the rules. We trust that this generous offer of Sir Alfred Jones will be appreciated, and that keen competition will result.

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SHOWS.—Keep in mind the Shows to be held on 1st August. Hanover Branch at Lucea, Trinityville at Serge Island, St. Thomas, and St. Ann Show at Brown's Town. The Show of the St. George Branch, at Buff Bay, has been indefinitely postponed owing to the delay of the Railway in making arrangements about special trains. On August 9th, there is to be held, what it is likely to be, a smart country Show at Mears Pen, Upper Clarendon. Mears Pen is on the road from Chapelton to Frankfield. As the Instructors' matters are still all undecided it has been difficult to fix arrangements for all these Shows, but it is intended that Mr. Cradwick will be at Lucea, Mr. Arnett at Brown's Town, Mr. Briscoe at Trinityville, Mr. Hirst at the Show at Mears Pen, Clarendon. The Secretary will be at

Brown's Town Show, and also at the Upper Clarendon Show on 9th August.

Hampden Branch.—It is stated that this Branch is in St. James, but as the Post Office and Church where meetings are held, are in Trelawny, and taxes are paid there, this Branch is really in Trelawny, but it will be dealt with by Mr. Cradwick who is Instructor for St. James. All the members of the Branch, however, who live in Trelawny, will be eligible to compete in the Prize Holdings Competition.

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SHORTHORN COWS.—In last month's Journal, we published the results of the Irish milking test at Dublin that Shorthorns won every prize, with an average of 24 quarts of milk a day. In the milking test at the Belfast Show the results were nearly the same. The first prize was won by a Lincoln Shorthorn with 121.50lb. of milk for two days' milking, *i.e.*, 24 quarts per day. The first four prizes were won by Shorthorns or Shorthorn crosses. Jerseys and Ayrshires and Kerries came far behind. Of course the net profits on the animals may be another question—big yield may be at big cost, but the fact that 90 per cent. of the milk supply of England comes from Shorthorn cows, shows that it is considered the most profitable to keep.

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CASTOR OIL.—The estimated yearly consumption of Castor Oil by the South African Government is 66,000 imperial gallons, and the actual issues to the railway for the past six months total 33,380 imperial gallons. No 2, Liverpool quality is used, all the oil being obtained under contract in direct importation from India.

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INDIAN GOATS.—As Indian goats are remarkable for their size and excellent milking properties, it was considered that they would be likely to prove of much value in improving the local breeds of goats in the West Indies. Two goats from Northern India have therefore been imported by the Imperial Department of Agriculture from India to Barbados, where they were safely landed and were found quite tractable.

HORTICULTURE.

WE are glad to see that the Kingston Horticultural Society has been resuscitated, and trust that individual efforts will be made to enable a Horticultural Show to be held.

Gardening, or rather the raising of vegetables, has become more wide-spread now than before. But very few in the uplands, and certainly very few in the lowlands, keep up their gardens during the summer, still, a fair selection of vegetables may be raised in the hot weather. November is the usual time to plant for the cool weather, but it is often forgotten that March and April is the time when the summer crop of seeds should be planted. The more delicate seeds can be raised in boxes under shelter and planted out after the heavy rains, end of May or beginning of June.

Seeds.—Those who intend going in for vegetable gardening on some scale, should not omit to arrange for their seeds as early as August. That is, notify us, or see the merchants who sell seeds in Kingston what they are likely to want. The great trouble always is, that people *will* wait until the time of planting is at hand, before getting their seeds, and then they find they cannot get what they want, as a hundred other people, and a host of small settlers are in the same position.

Irish Potatoes.—We shall take orders for seed potatoes until the middle of September, after that will be too late. The price will be about 12s. 6d. a barrel here.

STOCK NOTES.

IRISH BACON FACTORIES.—Up to the year 1887 there was not a single co-operative bacon factory in Ireland. Now there are 27, and a new one is about to be established at Roscrea. This will entail an expenditure of fully £10,000, but as a result of the co-operation among the farmers for twenty miles around Roscrea, no less than 9,652 shares have already been taken up. A supply of 1,000 pigs each week has been guaranteed. It is proposed to expend £3,000 on machinery, and to engage a first-class manager.

ALTHOUGH Jamaica is the chief stock-breeding island in the West Indies, and certainly possesses the best stock, we have not yet made systematic experiments with various breeds to find out exactly what breeds or combination of breeds would best suit our circumstances. What we have done has been more haphazard so far as our crosses of cattle, sheep and pigs are concerned. At the Government Stock Farm in Trinidad, they have for some years been systematically carrying on the work of testing various crosses in cattle and pigs, and the following note concerning their work is from the "Agricultural News":—"The cattle on the Government Farm have been divided into two herds, one of which will be used for breeding stock for work, and for beef-production, while the other will be developed especially for dairy purposes. The Shorthorn and Red-Poll breeds are being used for crossing with the Zebu stock. Guernseys gave unsatisfactory results in the trials made, and the Shorthorns have replaced them at the Government Farm. The calves from the crosses of Shorthorn with Zebu, and Red-Poll with Zebu, have given satisfactory results, the latter especially so. Horse breeding is followed to a limited extent only. Experiments in breeding a strain of pigs suited to the needs of the colony are being carried on. Tamworths and Berkshires have been crossed, and a typical animal has been produced, which is, in every way, suited to the needs of the colony. The Poland-China breed has been introduced, but it is too soon to say what the results will be."

If anyone had the enthusiasm, skill and patience required to experiment with blends of breeds, it is, we think, certain, that a breed of

cattle could be bred here of fair all-round merit, suitable for general circumstances, and adapted to our climatic conditions. For instance, a quarter of Zebu, a quarter mixed native breed showing the old Spanish cattle characteristics, a quarter Ayrshire, the hardiest and most active of all milking stock, and a quarter Shorthorn, and if polled beasts are favoured, Red Poll, would, if a process of selection of the fittest for the purpose in view were carried out, year after year, result in a strong, hardy, active, good-tempered animal, the steers fit for draught, fairly good beef, and cows good milkers, when suitably fed and handled.

SCOURS IN CALVES.—Scours or Diarrhoea in calves, is very common amongst hand-fed calves, of which we have now quite a number being raised in connection with the dairy industry. This disease is highly infectious and passes quickly from one animal to another, and therefore whenever it breaks out the infected animal should be at once removed and kept by itself. Whenever the calf is dropped, in those dairies where cows are kept under cover, care should be taken that it does not come into contact with dirty litter. The calf should be rubbed with a wet cloth dipped in disinfectant. The most common source of scours in the young animal is improper feeding. It is a common idea, with beginners in raising and feeding calves, to think a calf is an iron bound machine that you can pour all sorts of substance into at any time, and they ought to grow well on this treatment. Scours may be caused by giving too large a quantity of food at one time, by having the feeding cold or feeding irregularly. The calf in nature never gets a very large quantity at once, and the milk is always warm when it takes it from the cow. The disease should be treated by giving Linseed oil frequently, but failing that, Castor oil one tablespoonful and Coconut oil one tablespoonful, and two days after a dessert spoonful of Jamaica Healing Oil to a calf from a month to six months old. Then feed regularly and naturally on warm food, giving one meal per day of arrowroot pap, or failing the arrowroot, common flour mixed with hot water. It is, of course, just as injurious to the calves to give the food too hot as too cold. When scours break out all the buildings around the yard should be white-washed with a tablespoonful of Jeyes Fluid or any good disinfectant to every gallon of white-wash.

FILTH IN MILK.—A report on milk presented to the London County Council recently, is enough to make one's hair stand on end. After reading it, one wonders why anybody drinks milk at all, so amazing are its possibilities for ill. In one of his by no means discouraging paragraphs, Dr. Houston says:—"The opportunities, afforded milk under existing conditions of becoming contaminated, both during and after milking operations, are almost infinite. The cow may be coated with filth, the milker may be dirty, the milk utensils may be unclean, and the air of the byre may be loaded with

excrementally polluted dust. Fresh opportunities for the ingress of filth are afforded during its transit and in the premises of the dairy shops and milk purveyors. The whole history of milk from start to finish, from secretion by the cow to ingestion by the human being, is fraught with potential risk to the consumer." Is this true? Undoubtedly it is; and only the frank recognition of the fact by producers will bring about a remedy. We are constantly insisting on the need for greater cleanness in all the operations connected with dairying, as we know only too well how culpably careless many milkers and handlers of milk are. They think it does not matter, but it does. Dr. Houston gives an unpleasant reminder of our duty. —"Farm Life."

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HORSES.—When there is a discharge from the nostrils of a horse of a thick yellow matter which may or may not smell badly, it is well to begin working at it at once. In such cases Glanders is always to be feared, but not all such discharges are Glanders by any means, it may be Strangles or simply Catarrh. Put a teaspoonful of Jeyes into half-a-pint of warm water and inject into the nostrils and wash clean. Do this three times a day for three days, and then it is better to use the injection at less strength, say a teaspoonful to a pint of water, and sponge the nostrils well, after injecting with Jamaica Healing Oil advertised in this Journal.

CORRESPONDENCE.

Foreign Birds, Ticks, Ants, Worms.

SIR,—I am of opinion that the introduction of foreign birds or beasts of any description should be prohibited by law. We have the mongoose and Texas Fever for a legacy as the result of the non-intervention of the Government, not to mention frogs, rats, and ants!

Re Tick Dressing.—You can take it that banana juice alone will kill ticks. I prefer equal parts of juice and some orange juice, 1 pint Gas Tar and $\frac{1}{2}$ pints Jeye's to 4 gallons of the juices, boiled together. This helps to mix the tar, and this with the orange juice makes it stick. It absolutely kills ticks, does not strip and lasts a week or two on the animal. *Why* try 'fancy' washes then?

Re Tree Ants.—These are the easiest pests to get rid of—simply go up the tree, make a small hole on top of the nest with finger and fill nest at once with boiling water. Like bees, if all eggs are destroyed they cannot raise another queen and that colony is practically extinct. *I have done it.* I fancy Bi-Sulphide would do the same for tree or stinging ants. The whole secret of success is to destroy the queen and all eggs

Re Strongylus Worms.—I lost a fine 2-year old heifer a few weeks back. The post-mortem revealed Strongylus in crowds in lungs and fourth stomach. I do not say this caused death, but we could find no other cause, the heifer did not look 'sick,' in fact looked well! I find if cattle begin to look bad, turpentine $\frac{3}{4}$ oz. in half-pint of castor oil or $\frac{3}{4}$ oz. Jeye's with the castor oil, answers well, but this must be done early, for I find if extreme anaemia is established they almost invariably die. *Treat early.* I am going to try 5 drachms of bi-sulphide of carbon for Bots? I want a good medicine to carry it in a drench.

I should be very sorry to have to use fire in my pastures to get rid of ticks.

C. T. D.

23rd June, 1906.

ORANGES IN ENGLAND.

ARRIVALS of Citrus Fruits from Jamaica between the 23rd August 1905, and 1st February, 1906.

Date.	Port.	Ship.	Cargo,
1905.			
Aug. 23	London ...	Bornu ..	33 cases oranges.
" 28	Bristol ...	Pt. Kingston	1,289 cases oranges, 135 grape fruit.
Sept. 14	do.	Pt. Antonio..	3,670 cases and 15 barrels oranges.
" 28	do.	Pt. Royal ...	4,728 cases oranges, 16 boxes lemons
Oct. 3	Manchester..	Matina ...	4,417 cases oranges.
" 9	do.	Manitoe ..	4,100 do.
" 9	Bristol ...	Pt. Kingston	9,788 do.
" 17	Manchester..	Nicota ...	4,837 do.
" 26	Bristol	Pt. Antonio.	10,105 do.
" 31	Manchester..	Miama ...	5,383 do.
Nov. 4	Bristol ...	Pt. Royal ...	9,088 cases oranges, 47 boxes lemons.
" 7	Manchester..	Pacuare ...	7,356 do.
" 20	do.	Matina ...	572 cases oranges, 37 boxes lemons,
" 20	Bristol ...	Pt. Kingston	4,039 do.
" 28	Manchester	Manistee ..	5,198 cases oranges, 23 boxes lemons.
Dec. 6	Bristol ...	Pt. Antonio..	3,605 do.
" 15	do.	Miami ...	4,500 do.
1906.			
Jany. 1	do.	Pt. Kingston	696 do.
Fel. 1	do.	Pt. Royal ...	1,096 do.
			84,500

It would appear that grape fruit has been included in the designation "oranges."

The first cargo of Mediterranean oranges arrived on the 1st November, 1905. Small quantities such as one or two hundred cases arrived periodically during October, but not in sufficient quantities to affect the prices of Jamaica fruit. Jamaica has therefore practically the monopoly of the market until the 31st October annually.

2nd March, 1906.

B. C. ORGILL.

SHOWS TO BE HELD.

THE following Shows are arranged :—

St Ann, Brown's Town, 1st August.

Hanover, Lucea, 1st August.

St George, Buff Bay, 1st August, (postponed indefinitely.)

Trinityville, 1st August.

Rio Minho,—Frankfield, 9th August.

Santa Cruz, 9th November.

Manchester,—Kendal, 28th November.

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No. 8.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society, was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 19th July, 1906, at 11.30 a.m. Present:—His Excellency Sir J. Alexander Swettenham, K.C.M.G., presiding; the Hons. L. J. Bertram and Dr. Pringle, Messrs. John Cameron, D. Campbell, C. A. T. Fursdon, R. H. Hotchkiss, E. W. Muirhead, and the Secretary, John Barclay.

Minutes. The minutes of the previous meeting having been published in the current Journal, were taken as read and confirmed.

Father Collins. The Secretary read the following letter from the Revd. Father Collins:—

26, North Street, Kingston, Jamaica, 23rd June, 1906.

I am in receipt of your favor of the 21st inst., and of the enclosed resolution of sympathy with Bishop Gordon, which, I have the pleasure of forwarding to him.

In reply to your letter, I shall be glad, if I can be of any assistance to your Honorable Board, and I appreciate your kindness in asking me to take Bishop Gordon's place. I fear that I have no other special fitness to serve on your Honorable Board at present, beyond a good will, and a desire to render whatever help I can. Thanking your Honorable Board for their kind appreciation, I beg to remain,

Yours truly, J. COLLINS, S.J.

Contagious Diseases The Secretary read the following letter
Animals Law. from the Colonial Secretary's Office:—

No. 5684-6525.

28th June, 1906.

I am directed to acknowledge your letter of the 23rd June, and to state that you have not adduced any reason to show that the rule *ubi commoda ibi incommoda* is inapplicable to the stock-raising interest. But if it were inapplicable, the injustice of applying the rule would seem to attach to the entire interest, to each person in proportion to his stock and, therefore, it is difficult to perceive how there could be any special unfairness in the case of small settlers. Each, of course, would profit or suffer exactly in proportion to the stock he held.

No action was taken upon the matter.

Premiums on Importation of Stock. The Secretary submitted a letter from Dr. Gibb, making protest against the Society's offer of premiums for the importation of certain breeds of stock, holding that premiums should be offered for any

breed of cattle, sheep, goats and pigs that anyone liked to import; and the Secretary read his letter in reply, pointing out the reasons for making the selection, and stating that the object of the Society was to encourage the importation of strictly utility breeds likely to be the most suitable for our circumstances at the present time. The Secretary said that Dr. Gibb was so far wrong, that the choice of animals had been distinctly approved of as he did not know of one other objection being raised; further regarding the premiums on pigs, there were already six applications for three premiums, so that a selection would require to be made; for bulls there were already two applications, and he knew of two or three more which might be made soon; for goats there were no applications as yet.

The Board approved of the Secretary's action.

Penkeeping Industry. The Secretary submitted the report of the Live Stock Committee on the Penkeeping Industry which had been brought up at the previous meeting of the Board, but which had been circulated round members of the Committee, so that those who were not present when it was drafted might be afforded an opportunity of carefully revising it.

His Excellency said he had noticed that in the report of the Committee, it was stated that not less than 2,769 head of cattle had been exported from Jamaica to Cuba during the last financial year, amounting in value to over £16,000. If they went on exporting cattle in this manner they would soon find a splendid market in Cuba. The other day when Mr. Norman Dickson, the Administrator-General of the Cuban Central Railways was in Jamaica, he told him (His Excellency) that in Cuba they had to pay exorbitant prices for beef. It appeared to him (His Excellency) that what they wanted, was a good agency in Cuba to deal with cattle sent from Jamaica. It would be a very promising thing if they could put their heads together and arrange for an agency in Cuba. They would find that the penkeeping industry of the island would be able to make some money out of the business.

Mr. Fursdon said if they could start a trade in beef cattle to Cuba, they would only be too delighted. He would point out, however, that there was an import duty in Cuba of £2 per head on beef stock, and what they had been exporting to Cuba was only breeding stock. Cuba, of course, got most of its imported beef stock from South America, where they could produce their beef stock at 50 per cent. less than what it cost the penkeepers in Jamaica.

His Excellency remarked that the people in Cuba were bringing in Italians to the country by the thousands to work on the sugar estates, and those men would eat beef, and the consumption would, consequently, go up to a great extent.

Mr. Muirhead said it would be interesting to know how the calculation that cattle to the value of £16,000 had been exported from the Island to Cuba during the last financial year, had been arrived at. The bulk of the cattle which were sent away were cows and calves.

Mr. J. R. Williams said the official figures were as follows ;—

	No.	Value.
Asses ...	24	37 0 0
Cattle ...	2,767	16,566 3 0
Horses and Mules...	132	1,710 0 0
Sheep ...	39	42 15 0

2,962 £18,357 18 0

His Excellency said this export of cattle to Cuba was extremely creditable to Jamaica, and he only hoped that those persons who were engaged in the cattle industry, would go on increasing their exports.

The Secretary read some further opinions of the Committee noted in the report.

After discussion, Mr. Campbell moved the adoption of the report, and Mr. Cameron seconded. Dr. Pringle dissented as regards the butchers' license, and the vote was six to one in favour of the motion.

The Secretary was instructed to send the recommendations of the Committee to the Government.

(The report is published on page 319 of this Journal.)

Tuberculous Cattle. The Secretary read the following letter from Mr. Fursdon :—

I noticed that a big steer was condemned on Saturday morning by the Government Inspector of Meat as being unfit for human food, as it was said to be suffering from tuberculosis. It has been stated at the Board that in England the practice is only to throw away the parts actually diseased, and if this is so, it would appear that a considerable waste of meat took place, unless it was considered a good opportunity to decrease the superfluous fat stock said to exist in the island, but which no one can see. The subject might be taken up with advantage by the Board.

The Secretary was instructed to get all the information on the subject possible, as to what was done in the United States and the United Kingdom and report to the Board.

Elder Dempster & Co's The Secretary read the following letter
Instructors. from the Colonial Secretary's Office :—

5276-5177.

20th June, 1906.

SIR,—Referring to your letter No. 3194, dated 23rd February, and to previous correspondence on the subject of the appointment of Agricultural Instructors under clause 10 of the steamer service contract of Messrs. Elder Dempster & Company, I am directed to transmit, for the information of your Society, a copy of a Despatch from the Secretary of State for the Colonies, from which it will be seen that this Government will receive the £500 a year to be paid by Messrs. Elder, Dempster & Company in lieu of the fulfilment of the requirement to appoint these Instructors, provided the money is devoted by the Government to the same purpose.

2.—I am to say that the Governor will be glad if your Society would be so good as to nominate new Agricultural Instructors on the best terms that can be secured.

3.—In dealing with the matter, your Society will no doubt consider whether the present trained local Instructors' services should not be more fully employed before further appointments are made.

I have the honour to be, Sir, your obedient servant,

T. LAWRENCE ROXBURGH, Act. Col. Sec.

No. 114.

Downing Street, 27th April, 1906.

Governor Sir J. A. Swettenham, K.C.M.G., etc., etc., etc.

SIR,—I have the honour to acknowledge the receipt of your despatches Nos. 92 and 127 of the 1st and 21st March, on the subject of Messrs. Elder, Dempster & Company's obligations under clause 10 of the contract for the Imperial Direct West India Mail Service.

2.—I have communicated with the Lords Commissioners of the Treasury, who have agreed that the whole sum of £500 to be paid by the contractors shall be retained by the Jamaica Government, upon the understanding that the full amount will be devoted to the payment of Instructors.

3.—I have accordingly instructed the Crown Agents to communicate with the contractors with a view to the carrying out of the arrangement and the conclusion, if thought necessary, of a supplementary agreement embodying it.

I have, etc., (Sd.) ELGIN.

The Secretary said the matter had been under consideration for a considerable time by the Instructors' Committee, and they reported as follows :—

We recommend to the Board of Management of the Jamaica Agricultural Society, that pending a general revision of the work and districts assigned to the Instructors, ad interim arrangements only be made now, and that these ad interim arrangements be, first, that Mr. Palache continue as hitherto (2 and 3) Messrs. Arnett and Hirst each do instruction work 12 days a month in the districts they now hold for £200 per annum, inclusive of travelling, and the Government be asked to pay the difference between their present salaries and the salaries proposed out of the Elder Dempster money. All the gentlemen to be informed that this is an ad interim arrangement to stand till the end of December.

The Governor asked what the Board proposed to do in regard to additional instructors. Did they not propose to do anything else ?

Mr. Williams said they had given a great deal of time to this matter, but unfortunately, only three of the members of the Instructors' Committee were in the island at present. There were great difficulties in the way of making a general revision now in the work of the Instructors. For instance, they had received an application from the Savanna-la-Mar Society for an Instructor for the parish of Westmoreland, which was part of Mr. Cradwick's district. The members of the Instructors' Committee thought that the time had come when there should be a general revision in the districts of the Instructors and their work, and the committee were of opinion that the best way of securing that was to have a conference with the Board of Agriculture. But they thought that this conference should be deferred for a few months until Mr. Fawcett returned to the island, by which time both Boards would be strengthened, as several of the members of both organisations were off the island just now.

It was agreed that to prevent overlapping of work and to rearrange districts, and in order to save time, that the Instructors' Committee should meet in conference with the Board of Agriculture before, and report to the Board at the next meeting.

The Secretary submitted the following letter from the Secretary Savanna-la-Mar Branch :—

At the quarterly meeting of the Savanna-la-Mar Branch of the Agricultural

Society held on the 13th inst., and with reference to the whole subject of an Agricultural Instructor, I was directed to reply as follows :—

1.—That the western parishes of this island have to pay their portion of the £20,000 subsidy to the Direct Line of Steamers

2.—That while recognising the good done to the island generally by the establishment of this line, the Society would point out that the direct advantage is restricted almost entirely to the eastern-end of the island.

3.—That the western-end of the island obtains no direct benefit from the line of steamers now, nor has it done so in the past.

4.—That the opportunity has now arisen whereby some direct benefit may accrue to this end of the island through the appointment of an Agricultural Instructor, whose duties should be confined to this part of the island.

5.—That the salary of such Instructor could justly be a first charge on the £500 now paid by the Direct Line to the Government of Jamaica, and by it handed over to the Jamaica Agricultural Society to be expended on agricultural instructors.

6.—The Savanna-la-Mar Branch would be pleased to recommend Mr. C. P. Bovell as an Instructor for this end of the island, believing that he is thoroughly qualified to fulfil the duties of Agricultural Instructor.

7.—In conclusion, I have to state that the adoption of this reply was carried with the President, J. W. Mennell, Esq., in the chair, and it was ordered to be forwarded to the Secretary of the Jamaica Agricultural Society.

Hurricane Insurance. The Secretary read the following letter from Messrs. Head & Co., with regard to, Hurricane Insurance :—

27, Corn Hill, London, E.C., 22nd June, 1906.

SIR,—Since the writer had the pleasure of discussing this question with you, he has talked the matter over again with the Underwriters, and they have now consented to give an alternative quotation where buildings are insured with cultivation. The amended terms are as follows :—

a. Buildings.—Where cultivation is insured with the buildings the rate will be 30s. per cent. in the case of wooden buildings, and 20s. per cent. in the case of stone buildings, subject to average. For this premium Underwriters will pay the excess of any claim on the following scale :—

Up to £1,000 5 per cent. £1,000 to £2,000 4 per cent. £2,000 to £3,000 3 per cent. £3,000 to £10,000 2 per cent. Over £10,000 1 per cent., and they are ready also to reduce the franchise on the above scale.

b. Cultivation.—The rate for this will either be 30s. per cent. to pay the excess of 5 per cent. as originally proposed, or 40s. per cent. returning 5s. per cent. for no claim, to pay all claims in full subject to the franchise of 5 per cent. Underwriters are also prepared to take part of an estate only should planters desire it, provided such part can be clearly defined.

They will allow in the case of cocoa and lime trees any reasonable value to be put upon the trees for the purposes of insurance at the option of the planter. Where, however, bananas are planted with cocoa, Underwriters will only take it on the terms originally proposed, viz : at a premium of 30s. per cent. to pay the excess of 5 per cent. on the value insured.

Coconuts.—The rate for this will be 50s. per cent. to return 5s. per cent. for no claim. For this premium Underwriters will pay a claim in full subject to its amounting to 5 per cent. of the value insured.

We shall be glad to hear whether in your opinion these revised terms are likely to suit the wishes of the planters in your island, and we shall much value any information you may give us.

This was referred to the Special Committee which had been dealing with the subject.

St. George's Branch The Secretary submitted resolution from
re Railway. St. George Branch, Buff Bay, as follows :—

That this meeting view with surprise and astonishment the attitude of the Jamaica Government Railway in regard to the agricultural interests of

our people as shown in the circumstances which led to the postponement of the St. George's Agricultural Show, which was to be held at Woodstock on the 1st August next, in requiring the Committee to lodge a guarantee in advance for the running of special trains, and further the unnecessary delay to reply to important communications sent them from this Society.

That the Secretary of the Jamaica Agricultural Society be asked to submit this resolution with the correspondence to the Board of Management of the Jamaica Agricultural Society at its next meeting.

The Secretary gave a summary of the correspondence, whereupon Mr. Fursdon remarked that the ways of the railway were past understanding.

Mr. Campbell said it seemed to him that the complaint of the parties who had charge of the Show was more against the delay of the railway authorities in replying to their communications, than as to the amount of the guarantee which they asked for the running of the train. The time for the holding of the Show had, to a certain extent been fixed, but the delay of the railway authorities in sending a reply to the Buff Bay Society caused them to postpone the holding of the Show indefinitely.

The Governor said the Jamaica Government Railway was very much in the same position as the Board of Management of the Agricultural Society. Certain things had to be done before the railway could grant a concession on any matter submitted to the Director or any other official of the railway. They had to consult an Advisory Board which only met on certain days; therefore he was not astonished if there was a delay. And perhaps on the day when the Advisory Board was supposed to meet, there was no quorum, and the matter would further have to be delayed. He did not think that the Board of Management of the Agricultural Society were in a position to complain seriously of delays.

The Secretary said that the Board of Management of the Agricultural Society was not a business enterprise in the same way that the railway ought to be.

Mr. Campbell said he was not contending that the railway was to be blamed in the matter. He was only saying that the promoters of the Show complained of the delay.

The Governor said that when they were dealing with the railway on a matter that required to be laid before the Advisory Board, they must be prepared to give them plenty of time.

Mr. Campbell: The railway authorities had a precedent to go by. They had before them the earnings of the special train on a previous occasion.

The Secretary: On the previous occasion the railway did not require a guarantee at all.

The Governor: Would you like to send this complaint to the Governor?

It was decided that no action should be taken in the matter.

Ramie. The following letters *re* Ramie were submitted, and one of the communications on the matter which contained fresh matter was directed to be published:—

Hythe End, Staines, June 23rd, 1906.

Sir,—I am informed by the Colonial Secretary that the question of Ramie cultivation is under your consideration.

I have pleasure in sending you a pamphlet and enclosing two letters.

Ramie is worth your serious consideration, and if your Society will take it up, we would join by arranging for your process to filasse on the spot a sample enclosed.

Yours faithfully, D. EDWARD RADCLYFFE.

RAMIE.—A vast Industry opening. Fortunes for Planters. The Textile of the future.

SIR,—At last the merits of this wonderful fibre are becoming known. The Government has at last issued a bulletin recommending its cultivation, though I doubt if it will get beyond the pigeon-holes of the Bureaux of those to whom it has been sent, and it will still be left to the individual to make it known.

I am pleased to see also our Agricultural and Horticultural and Botanic Societies, Technical Colleges, and Chambers of Commerce are alive to its merits. Special praise is due to that most up-to-date, painstaking and persevering, though very young Institution, the Liverpool University. This admirable Institute of Commercial Research is making the claims of Ramie, the king of fibres, known to our Empire.

It can be grown in most of our Colonies. If Ramie were produced in quantity, cotton and flax crises would be banished. It would be universally used if supplies were forthcoming. There is no fear of overstocking the market; the trouble is, those who could and would use it, are prevented starting owing to absence of supply. There are fortunes for planters.

There are to be two exhibitions here in London, June and December this year, to advance and exploit Colonial produce. Here is a grand opportunity to exhibit Ramie (Rhea). If any of your readers have experimental patches of Ramie (Rhea) I would suggest they send samples to me.

1st.—Cut a dozen stems as long as possible with all side shoots, leaves, &c., &c. *Dry thoroughly in the sun before packing.* If too long for post double up but do not cut into pieces.

2nd.—Strip from other stems about one pound of ribbon—as peeled from the stems *Dry thoroughly in the sun before packing.*

3rd.—Strip, say, another pound of ribbon, but whilst in a green or a fluid state scrape off the pelicle or brown bark, and remove some of the gum. This is easily done by drawing the ribbons through the thumb and finger, on which fix a piece of hard wood or bamboo; or draw the ribbons over the edge of a piece of board. Rinse in a little water and thoroughly dry.

If any growers of Ramie will send me these small samples, carriage paid, I will first test and furnish them with a report as to the fibre gratis. I will also, *free of expense* to the grower or sender, exhibit his specimens at one of the exhibitions.

I cannot too strongly impress on all who send specimens to be sure all are well dried before packing. I am most anxious to help to introduce Ramie, and I should be glad to know the names and addresses of all who in your Colony are willing to co-operate in introducing the industry. To those who know nothing of Ramie, I shall be pleased to send a pamphlet gratis on cultivation of Ramie, and I recommend every planter to experiment—it can be done for a cost of five or six shillings only. In the hope you will help to introduce what may become an enormous industry to your Colony, I will thank you in anticipation. Floreat Ramie!

D EDWARD RADCLYFFE, Staines, England.

The cultivation of Ramie not only means an agricultural industry, but also the possibility of a manufacturing industry following.

The Secretary submitted his reports on **Secretary's Reports.** visits made for the month, 1, —Port Maria Show, 2,—Visit to Above Rocks and Castleton, as follows:—

I beg to report that I attended St. Mary Agricultural Show at Port Maria

on Thursday, 5th inst. I went to Port Maria on Tuesday and assisted in the arrangements on Wednesday, returning to Kingston on Friday morning. The weather was fine, the grounds were in fairly good order, except that a good deal of debris had been left lying about, and owing to the previous wet weather, the entrance to the Show had been much cut up, and was rather rough. However, the location of the Show is so convenient that imperfections of this sort must be put up with, and time will improve the ground which not many years ago was a swamp. St. Mary is fortunate in having much help provided in the way of draft stock, drays and waggons, plenty of bamboo and coconut boughs, to build sheds for live stock cheaply, and is most fortunate in the valuable practical assistance rendered by its officers and others. The arrangement of buildings was very convenient, except that the shed for the trade exhibit of Messrs. Lyons & Son, Ltd, was too much out of the way for its purpose as an advertisement. Such advertising exhibits of private firms might in future be near the Agricultural Products shed so that people *must* see them.

All the stock shown was of very good class, but I specially noticed the small stock. The pigs were of great size, and in good condition; the goats too were presented in fairly good order, some having evidently been subjected to some grooming. There was a real good nanny in the class of milch goats, which, although over a year in milk, still gave two quarts. It is a great pity there are no rams of guaranteed good merit to put to such ewes, a few of which turn up occasionally at Shows.

The class of poultry was very fair, somewhat better than usual, although nothing to what should be shown in St. Mary; the eggs were in poor competition.

In the Agricultural Products Section, vegetables were rather poor, roots not in strong competition, only cassava being in every way remarkable for its size.

The citrus fruits made a very fair show for mid-summer.

The show of bananas was a great disappointment, and as estates do not seem to care to show for the honour, if not for the prize money, the class might be confined to small settlers, or at any rate, a separate class provided for them, and the prize money made tempting, say three prizes, 10s., 5s., and 2s. 6d., the bunches to be guaranteed to be field-grown.

In the grain section the corn was very good, but both first and second prizes went outside of St. Mary, first to Mandeville, and second to Brown's Town. I would recommend that the prize for corn in the cob should, in future, be put "Suitable for Seed Corn"—as good seed corn should be encouraged, and this can only be judged by seeing the cobs; prize money for this should be more substantial.

The prizes for coffee also went to other parishes, St. Andrew and St. Ann.

There was a fairly good show of cocoa exhibits, but still nothing to what St. Mary should turn out. Bananas and cocoa should be the strong items in St. Mary parish, and better prizes should be offered for them than for anything else. I hardly see why St. Mary should offer specials for pines and oranges and grapefruit, at least over cocoa.

Meals and starches were in fair competition, but the judging was easier than at most shows, as the prize winning exhibits were easy to pick out, and the prizes ran nearly all in the same names.

Preserves were only moderate, there being no great competition, although the prizes were liberal enough. St. Mary housewives are not so keen on preserves, apparently as in St. Ann, where there is usually fine competition, taking a great deal of judging.

The manufactured articles and trade exhibits were in fair competition. There were also prizes for ladies work and for school exhibits, and very good prizes too, but the competition was only moderate. Very liberal prizes were offered for three classes in horticulture, but the competition was very disappointing.

Mr. Peet, of the Manual Training School in Kingston, had an instructive exhibit at the Show, which was an eye-opener to a great many, who were not

aware that such valuable work was being carried on in the island. I understand that this exhibit is to go on to the Hanover Show at Lucea, and it would be of service to the country if more Shows could make arrangements for such an exhibit.

Messrs Lyons & Son, Ltd., had an exposition of ploughing with a disc plough, and substantial prizes were also offered for the forking competition. At the first Show, both of these were well attended, and the forking competition had many competitors and was keenly fought out. This year, however, I was greatly disappointed to find that it had practically to fall through. This is a thing that requires proprietors of estates to interest themselves about, so as to get their best forkers to turn out. It seems strange that prizes of 10s., 5s., and 3s. should go a-begging, for not more than half-an-hour's work.

The Riding and Driving Competition are necessary at a Show, because they are the things which draw the crowd, and there could be no Show without a gate. There could be no cultivation and civilisation indeed without horses, mules, and cattle; the better they are the more thorough and more expeditious our agricultural operations will be carried out. It is an economic thing to offer good, substantial prizes for milch cows and milch goats, looking at the terrible waste of money in importing condensed milk and butter; and for good prizes to be offered to encourage the breeding of good pigs, seeing that we import barrelled pork and bacon ham to needless extent. It is a most necessary thing also to encourage the production of good fowls and good eggs, which are absolutely indispensable to our personal welfare, and also for the sake of the tourists trade, now becoming so valuable to the island,—tourists who scoff at our meagre chickens and diminutive eggs. Then good dogs are wanted to protect our houses and yards at night and to kill vermin, but we think the prizes for the breeds could be reduced, seeing that the classes are hardly ever filled. At most Shows, only a class for watch dogs and terriers; three substantial prizes in each class, would be sufficient. In spite, however, of the necessity for these live stock classes being encouraged as far as we can, we have always held,—and have fought over the matter with various Show Committees—that there was too great a discrepancy between the money offered for live stock and for agricultural products, even keeping in view the greater expense incurred in the transit of live stock. In every parish, there are certain products more particular important in that parish than in others, and which ought to be encouraged to the utmost extent. Coffee and ginger in Manchester, cocoa and bananas in St. Mary, for instance. It is a pity that the draft of the prize list was not submitted to either Mr. Cradwick or myself, or both, as it could have had a good many revisions suggested.

The Show on the whole was very successful, but the attendance was not as large as previous years, the cause of which was put down to bananas being bought throughout the parish on Thursday, which did not happen in the previous year, and, of course, business should always be first. Still there will be a surplus to add to the bank account of this fortunate Show Committee.

JNO. BARCLAY, Sec.

Instructors' Reports. The report of Mr. Arnett, Instructor for Lower Trelawny and St. Ann, and the report of Mr. Hirst, Instructor for Upper Trelawny and Upper Clarendon, were submitted. The Secretary stated that excerpts of these had been published in the newspapers, and no action needed to be taken on them.

New Members. The following new members were duly elected :—

Messrs. F. J. Arbuckle, Sancti Spiritus, Cuba; A. H. B. Gall, Waltham, St. Marks, Grenada; W. G. Lang, Tuileries, St. Andrew, Grenada; Claudius Levy, Gibraltar, Moneague; Strawsons, 71a, Queen Victoria St., London.

The meeting adjourned till Thursday, 16th Aug., at 11.30 a.m.

DRAINAGE.

At the request of some of our Branch Societies, we wrote on "Drainage" in May number, and in addition, we now give an article by Professor J. B. Reynolds, of Guelph College, Canada, on the same subject, taken from a Report of the Ontario Agricultural Department.

"The question of drainage may be considered from two points of view ; first, Economic ; second, Engineering.

Under the first head may be considered the need for drainage, the benefits of it, the particular conditions under which it is desirable, and its cost. Under the second head the methods and operations of drainage are considered,—the depth and distance apart of the drains, their position in relation to the slope of the land, the amount of fall, the actual digging, laying and filling in, and drawing a plan or map of the system of drain for future reference. We shall consider first the economic view.

The Need for Drainage.—One necessity for drainage is its effect, by the removal of free or surplus water, in *firmiting* the soil, and thus making early cultivation after rain possible. A very wet soil is almost fluid in its character, the excess of water preventing adhesion among the soil particles. A very dry soil, especially if heavy, has its particles cemented together after drying out, by the material that was held in solution in the water. A moist soil lacks the cemented condition, and therefore, allows of easy cultivation, but at the same time the moderate amount of water present, by its own surface tension, holds the particles together by a force feeble yet strong enough to bear the weight of horse and implements. The firm character of beach sand that has been wetted by the waves and yet stands high enough above the water to drain out the free water; compared with the soft and yielding nature of the same sand when dry, illustrates the binding effect of the capillary water.

Another necessity for drainage consists in the fact that a certain amount of leaching is at times desirable and even essential. If capillary movements of water are going on all the time in the soil, these bring up to the surface salts of all kinds that are contained in the subsoil. This capillary water when it reaches the surface is evaporated there, and leaves behind at the surface salts that it held in solution. Unless there is a certain amount of downward movement of water to wash out these salts, there tends to be an accumulation of salts at the surface soil, that finally by their excess act as poison to the growing crop. Such excessive accumulation is likely to occur in swampy soils, and in places where there is not enough rainfall to produce percolation, and where there occurs what are known as *alkali lands*, that is, lands with an excess of alkali at the surface. One effective remedy for alkali, in dry places, is irrigation and thorough underdrainage, which

washes out the alkali and carries it away. Where there is abundant rainfall underdrainage is necessary in order to prevent surface washing. The excess water must get away somehow, and while undoubtedly there is some loss of plant food through underdrainage, there is much more when the surplus water is allowed to run off the surface.

The third need for drainage lies in the stagnation of water in undrained soils, and the consequent exclusion of air. It must be kept in mind that an abundance of oxygen in the soil is as needful for the plant as oxygen in the atmosphere is needful for the animal. The germination seeds need oxygen, or they will rot; the roots of plants need it in order to do their work; and the innumerable bacteria that work in the soil converting the crude manure to plant food, must have oxygen in order to thrive. Besides, the chemical changes that are continually going on in fertile soils, converting crude material to plant food, need both oxygen and carbon-dioxide. Hence we see the need for good drainage, that air may enter the soil in abundance. But the stagnant water in undrained soils, besides excluding air, keeps the soil cold. A *proper temperature* in the soil is as necessary as plenty of air. Growth cannot begin in the soil until it has attained a temperature of 45deg., or thereabouts, and the best results in growth are reached only when the temperature of the soil has risen to about 70deg.

How Drainage Ventilates the Soil.—When free water may be found, by sinking holes, within two feet of the surface, capillary action will keep the soil to the top of the ground so nearly full of water that there is little room for air. But when there is a drain three or more feet below ground, the standing water is lowered nearly to the level of the drain and hence plant roots are allowed to extend more deeply into the soil. Activities of various kinds, such as earth-worms, ants, and plant-roots follow the retreat of the free water into the deeper soil, and these activities form drainage channels through which the air may move freely to and fro. The drying of the soil, especially clay soil or soil with much humus, results in shrinking, and thus other channels are afforded for air movements. With all these channels extending down to the level of the drain, the air has freedom of movement. This is of special value in the time of heavy continuous rains. These showers quickly seal all avenues of escape upward for the soil air, and unless there is a way of escape below, the soil air is imprisoned between the water above and the impervious soil below. Consequently the rain-water is unable to enter the soil, runs off the surface, and is loss to the soil. But if the land is underdrained, the soil air can escape through the drains, and the water can follow it into the soil channels. Drainage thus is frequently a safeguard against drought. In another way it is a safeguard against drought, by enabling the roots of plants, early in the season, to penetrate the soil to a greater depth, and therefore in time of very dry weather to be feeding in the moister soil below rather than perishing in the dry surface soil.

Circumstances in which Drainage is Desirable.—It may be inferred from the foregoing that underdrainage, the percolation of water downward and outward through the subsoil, is essential to the well being of crops. It does not follow, however, that tile-drainage is necessary for all lands. Fortunately, many lands have natural underdrainage quite sufficient. The special conditions that make artificial drainage necessary are : *first*, lands that have close, retentive subsoils, through which water percolates very slowly ; *second*, low flat basins or sinks that become flooded with surface washings from higher lands surroundings ; *third*, low areas where the seepage or underground waters from higher lands collect, forming springs. Of the first type, whole fields and farms of level clay land are sometimes found to require drainage ; of the second, are the low, wet spots, ponds in the fields in the spring or after heavy summer rains ; of the third, springy hillsides or bottoms. In all of these instances, the natural drainage is evidently insufficient, and requires to be supplemented by artificial drains.

Relation between Drains and the Ground Water.—The standing water in the ground seldom presents a level surface. Suppose that a level field 10 rods wide has a ditch 4 feet deep along one side. The soil-water along that side of the field next to the ditch will of course drain away first, while the water in the soil more distant from the ditch will gradually percolate towards the ditch. The structure of the ground through which the water must pass will control the rate of drainage, but in any event the surface of the free water in the soil will not be level but will slant upward from the ditch bottom, at a slope depending upon the character of the subsoil and the length of time that has elapsed since the ground water began to fall. Suppose that a fairly close soil is to be drained, in which a gradient of 1 in 30 must be allowed for. It is desirable to have the ground water at its highest point not less than 2 feet below ground within 48 hours after a heavy soaking rain. Then if the drain is laid 3 feet deep, that allows a rise of 1 foot in the gradient from the drain to the highest point, that is a distance of 30 feet ; so that the drains may be 60 feet apart if 3 feet deep ; by similar reasoning it may be seen that if the drains are laid $3\frac{1}{2}$ feet deep they may be 90 feet apart. Thus there would be 3 lines of drain 3 feet in place of 2 lines $3\frac{1}{2}$ feet deep.

(To be Continued.)

SEASONABLE HINTS.

THIS Journal is published on the 15th of the month and from now, the 15th of August to the 15th of September, is the second great planting season of the year. Land should have been prepared, as we wrote about last month, in July. It is never wise to wait until the last moment and then turn over the soil roughly and plant immediately. It is well to begin at least a month ahead, clean up

the land, turn over the soil and leave it lying in the rough, when sun and air and rain will help to pulverize it and sweeten it, and so make its fertility more readily available.

CORN.—Crops of corn should be put in as soon as possible now. A hole made with the hoe may pay as a way to plant corn, but a forked hole pays doubly well, and ground all forked or ploughed better still. No man with any pretence of being a cultivator should take his seed at random, when probably, some of the worst grains that he has got may be planted, will grow, and produce their like, or worse. Every cob should be carefully selected, and if possible, from a stout, strong, stalk, so as to encourage the growth of stronger stalks which the breeze would not blow over so readily, as much corn is lost here from the wind. The most essential thing, however, is to get large, heavy, well-filled cobs, and to take the best grains only from the centre for planting, rejecting the top and the bottom. Guinea Corn should also be planted now, but unfortunately the seed is scarce, and we shall be glad to hear of any who can supply it as there is much demand for it.

COTTON.—Cotton seed should be planted now, so that the cotton may be reaped in the dry weather, at the end of January and during February. We direct attention to the one gold and two silver medals offered by Sir Alfred Jones, for the best cotton cultivations, not less than an acre grown. Those who desire to compete should communicate with us at once.

PEAS.—All sorts of beans and peas may be planted now with every prospect of success. In a country like this, no imported beans or peas should ever require to be used on the table; only fresh seed, like fresh animals for new blood, should require to be brought in.

VEGETABLES.—Such as pumpkins, cucumbers, melons, ochros, spinach, parsley, turnips, carrots and cabbage and tomatoes, may be planted now, and even in the lowlands will do well, but there the soil will require to be kept very soft, and better still, heavily mulched. Those who have kept over seed potatoes from their last crop may plant a small crop now for their own use. As the weather is hot, the drills must be made a little deeper than in November and March, so that the seed may be covered with three inches of earth, and flat cultivation would be better at this time of the year than hill cultivation.

BANANAS.—Small settlers who are apt to grow their bananas too thickly, and at this time of the year have many tall suckers, which will only produce fruit from now to December when there is not much sale, and at any rate at low prices which cannot pay, should go carefully through their bananas, and where there are good, healthy suckers standing 7 feet to 8 feet high, to the break of the leaves, should sacrifice the older suckers, which will keep these back. Forking through bananas, if it was not done in July, should not be delayed now. In visiting small settlers' places lately, we found bananas standing very thickly, some tall suckers only bearing 5 or 6-hand bunches, and which evidently,

had been allowed to grow up from cut suckers which had been pruned the year before. A cut sucker will never produce a good bunch, and particular care should be taken when pruning out suckers that they are not allowed to grow again. At the prices prevailing from July to February next, it would have been better to sacrifice even suckers that were shooting 9's, so as to let the promising suckers that might fruit from March to June next grow quickly, but when some of those stems we saw were only bearing 4's and 5's, hardly worth a penny, it was the height of carelessness, ignorance or indifference, perhaps all three, to let them stand. Thousands of pounds are lost to small settlers who do not understand the need for, and the purpose of, pruning bananas, and indeed all their permanent crops.

Cocoa.—Where we saw cocoa usually crowded with gourman-dizers, we have often explained at Branch meetings how these useless "blood-suckers" were taking the energy from the tree, that ought to have gone to make the tree itself larger, and make it bear more pods. This is the time of the year to go through the cocoa and prune these useless suckers off, where they have been allowed to grow. The pruning should not of course be done by a cutlass. The smaller shoots should be taken off with the pruning shears or a sharp knife, and the larger ones with a pruning saw, which every cultivator of permanent crops should have. We usually recommend members of Branch Societies, or several cultivators at least in the same vicinity, to club together, and buy such articles as pruning shears and pruning saws, and small spray pumps, and pass them round, as they would not be in use by individuals except for a short time each year. Orange and grapefruit trees in nearly all cases are growing too crowded and need pruning out of dead branches, and the scraping off of moss from the stems of trees should be done now. It will hasten the ripening of fruit to do this, and as every cultivator knows or ought to know, early fruit is gold, late fruit is most often so much waste. What is not known is, that the trees can be influenced by a little intelligent attention, which would be repaid a hundred fold.

SYSTEM.—No profit will result to anyone without system in the operations of the estate. We admit that with a people who do not realise fully the value of time and where 'putting off' is so rampant, it is not easy to get small settlers to be systematic and to apply forethought in their work. Not every planter has adopted the system of pruning bananas to encourage most fruits to be borne when prices are high. With vegetables most people grow them so that they have plenty when our tourists are just going, instead of three months before. It is the same with stock. Much loss is sometimes occasioned by not timing the droppings of all stock, horses, cows, pigs, etc., and the hatching of chickens,—not so much losses by death, but loss of profit by not having the young in the season of plenty of feeding, or with chickens when there is most demand.

LIQUID AND DUST SPRAYS.

AMONG the important lines of work carried on by the horticultural department of the Illinois Experiment Station, spraying for the prevention or control of the fungous diseases and insects which attack fruit plants, has had a prominent place.

The relative merits of liquid and dust sprays have been tested by the department through the seasons of 1903, 1904 and 1905, in three different orchards, two in the southern, and one in the western part of the State. The work was carried on in one orchard during two seasons, 1903 and 1904. Here four plots, containing thirty-eight trees were sprayed, a varying number of times with bordeaux mixture and paris green, prepared in the ordinary way, four alternating plots, containing an equal number of trees, were paired with the others, and treated on the same dates with an equal number of applications of dry bordeaux and paris green, applied as dust. Seven rows, each located between two sprayed plots and aggregating thirty-two trees, were reserved as control and received no spray.

The aggregate for the three seasons is 147 trees sprayed with liquid, 167 sprayed with dust and 110 unsprayed trees as checks. Records were kept of the effects upon foliage, and apples to the number of 372,726 were examined individually and the defects recorded. The work is reasonably extensive, has been carefully executed, and the conclusions are fully warranted by the results obtained.

With regard to the effect upon foliage, the results were identical in all orchards and in all seasons. Trees sprayed with liquid bordeaux and paris green retained the foliage in healthy working condition throughout the season. Dust sprayed and check trees may be spoken of together, because the behaviour of foliage was the same on both. Leaves began falling from these trees in July, and by early September they were practically denuded. This loss of foliage by dust-sprayed and check trees was due to apple scab, against which disease the dust spray was entirely ineffective. Differences in fruit were as marked as were differences in foliage. Liquid-sprayed trees gave smooth fruits of good size. Dust-sprayed and check trees gave small, ill-formed fruit, badly marked by scab and fruit blotch, and of very little value even as evaporator stock.

Dust-spray is 52 per cent. cheaper than liquid-spray, and it is easier to transport about the orchard. This is as far as I can go in an enumeration of its advantages. It is utterly worthless as a means of controlling orchard enemies, and money spent in its application is thrown away.

This must be noted, for even though the experiments were not made on cotton, still the dust-spray was not successful here, for in very breezy places the powder did not stick.

WILD COCOE.

In certain parishes, the wild cocoe or tannia, grows luxuriantly along riversides and springs. It would provide just as good feeding for hogs as cocoe heads, if it were not that the juice contains an acrid substance that is injurious to the mucus membrane of animals, and which there is no chemical means of eliminating, at present known. The analysis is as follows :—

Moisture	..	..	65.9
Ash	..	..	145
Starch	..	..	23
Albuminoids	..	..	1.25
Acidity	..	..	0.0735

PRICES OF COCOAS

THE report of the Ceylon Planters' Association for 1905, says regarding cocoa :—" Prices have been very unsatisfactory and have touched the lowest point yet reached in the history of the enterprise in Ceylon, one of the few satisfactory features of the market being the steady increase of shipments eastwards. Australia and the Strait Settlements accounting for 8,507 cwts. in the last year. The prospects as an adjunct to rubber are quite satisfactory, for the two products thrive excellently together there, and may in fact be said to be an advantage to one another." This is a most authoritative statement, regarding cocoa and rubber growing together.

LIVE STOCK AND FOUL PASTURES.

REFERRING to our frequent allusions to the necessity of change to fresh ground for all domestic animals, we think that the overlooking of this fact is the cause of the many diseases, especially parasitic diseases now becoming more prevalent. In a mild climate like this,—where there is no winter when the ground would be frozen hard or covered with snow, or at any rate with no feeding for stock in the fields, and these would be kept in yards or barns, by which the fields are rested and cleansed,—our stock are on pastures all the year round, and if it were not for the heavy tropical rains which wash and cleanse pastures, we should have far more disease than we have. In northern lands too, apart from the cleansing action and the rest, the winter gives, fields are not usually permanent pastures as here, but are under the plough and crops several years running, and they are under grass for a few years only at a time. Of course, our desire should be to keep as free from disease as possible. It is the practice of penkeepers to change stock from pasture to pasture at

intervals, but this is done only when the grass gets eaten down. Small stock owners who have limited pastures, and are situated in good growing districts where the grass is always plentiful, never shift their stock at all or rest their land at all, because they see the grass plentiful. It is entirely overlooked, we fear by large and small stock owners alike, that it is of vital importance to rest the land from stock, apart from the quantity of feeding. Cattle soon soil the land with their droppings and urine, a rank grass grows up around these places, the pasture looks abundant, but cows will not eat that grass made rank by their own manure unless compelled by hunger, and then they surely suffer from some trouble afterwards. But other stock have no objection to eat such grass, after it becomes mature and loses its rankness, so horses or sheep can be run in a pasture after cows for a time, and then the pasture ought to be rested for awhile from all stock. In the same way after horse stock have fouled a pasture with their droppings, cattle may be turned in after them, and sheep after them again. In the same way ground occupied by pigs must be completely rested for awhile; and one of the greatest sources of disease among fowls is the soiled ground where they have run for a long time. No good feeding, no medicine, no care, will be of use when animals run on ground thoroughly impregnated with their own excretions, and so any parasite one animal may have been infested with, or any disease one of the animals may have had, may be communicated to the pasture, and from thence to the other stock. But even though the stock may have been entirely free from disease, such fouled ground will soon induce disease. Frequent change of ground, or where in the case of small stock kept on limited ground, this is not possible, frequent turning over of the ground and liming are necessary to keep stock free of disease.

PLANTING SEED COCOANUTS.

THE following notes on the preparation of seed coconuts for planting, from the Report of the Philippine Bureau of Agriculture, are worth noting :—“ In preparing nuts for planting the best results have been obtained in the following manner: The nuts are selected from trees known to be good bearers, bearing not less than 150 nuts per year, these uniform in size, brown in husk, rich in copra, (*i.e.*, thick in flesh), and full ripe. Fully 98 per cent. thus selected will germinate successfully. After cutting they should be placed immediately in the nursery provided (of course, in the shade) on the ground. Prior to placing in seed beds, a bit of the husk should be chipped off on one side ; it should then be laid, cut side up, and left to germinate. Nine months usually lapse before they are ready for planting. The nut when placed on end, as is sometimes done, sends out a spindling plumule easily broken at the point of protuberance and, at best, never gains the vigor of those germinated

according to the method given. Two thousand nine hundred and thirty-one trees have been planted this year, most of them on ground that has been ploughed and pulverized and put in the same condition as for a corn crop. The result has been a marvellous growth, the trees being more than twice as large as those left to themselves."

POULTRY NOTES.

THE flesh of poultry as compared with other meats is finer in grain and texture, and as a rule very tender. It possesses an excess of the protein or flesh-forming elements, and lacks in the fat or fuel food, and for all these reasons it is the best flesh food for a warm country. Of the different kinds, turkey is considered the finest, but this is only by people who have never used Guinea Fowls much. The Guinea Fowl is called the Jamaica Pheasant, but in our opinion, it is superior to pheasant.

GUINEA FOWL.—When we look at the wild nature of the Guinea Fowl, that it cannot be confined, so that it may lay eggs in nests around the house, that it has always to be kept in a semi-wild condition, and it is so cautious and suspicious that it uses the most elaborate ways to conceal the place of its nest, so that when hatched the chickens cannot be properly looked after, but fall a prey to hawks or mongoose readily, it will be readily seen that the price of guinea fowls ought to be considerably more than fowls and somewhat more than turkeys. Yet hotels here, who, sometimes complain that they cannot get good poultry, when offered a large batch of guinea fowls, offered only 6d. per lb., which is the price of common unfattened poultry. For well fattened poultry 7d. to 7½d. should be the price, for ordinary turkeys 8d., for fattened turkey 9d., for well fattened turkey 10d., for ordinary guinea fowls 10d., in fine condition, 1s.

The hottest weather of the year is now on. See then that you keep fresh water before your fowls constantly, and see that it is kept in a shady place and kept pure and cool. During the hot weather insect pests are at their worst; sprinkle sulphur or insect powder in the nests of sitting and laying hens. Now that new corn is coming in, and is cheap, do not feed it as it is—half-cured. Feeding new corn often induces bowel complaints, and so cholera, but by parching it like coffee the feeding value of the corn is increased, (the raw starch being transformed into dextrine) and charcoal is provided, which is good for their digestion and prevents bowel troubles. Roup in the mouth has been prevalent in some places. A simple means of preventing this spreading among the flock through drinking the same water, is to prepare some tar water, *i.e.*, stirring about a pint of Stockholm Tar in two gallons of water, and taking off the water as required for use. When fowls are kept in confined runs, it is absolutely necessary to dig up part of the

ground at intervals as it soon gets fouled. This will also give the hens some worms to eat, provide some scraping for them, and make the runs clean by turning under the soiled top earth. In making butter at home, the sour milk or butter-milk will be found one of the best foods for laying hens, and if mixed with cornmeal, for fattening hens. At this time of the year fowls are beginning to moult. Eat up all your two-year old hens when they show signs of it, and if you have not raised pullets to take their places, buy some of a good laying strain. Get a barrel of lime and scatter some occasionally about the fowl houses and runs, and round your kitchen yard. It is a great absorbent of dampness, removes bad odours, keeps off vermin, and is an excellent disinfectant on the whole. Failing the lime, keep all your wood-ashes and use them instead. A dust bath is as necessary to chickens as water is to ducks. It is the fowl's natural bath, and prevents disease by killing lice. If they cannot find soft dust about your place naturally, make several places for them by mixing wood-ashes with soft earth, and sprinkle a little sulphur in the dust. Do not feed all corn, and nothing but corn. Parching the corn when new is suggested above, and even when well-cured corn is available, parch it at least once a week and feed it ; also feed dry rice once a week, especially in wet weather. It will help to prevent cholera or "fowl sick."

Bananas are plentiful and cheap at this time of the year. Ripe bananas are a good morning food for fowls, but boiled green bananas do not seem to be a food conducive to egg-laying. For roup in the eye—and the first indication of this trouble is the fowl's scratching its eye ; then the eye closes, put a few pellets of permanganate of potash in water (which makes Condyl's Fluid) and wash out the eye. If the eye is worked a little, some yellow, cheesy matter will work out. If this trouble is left alone it will finally blind the eye. If the case is far gone, keep working at the eye until you see the yellow matter, when it can be picked out with a match-stick. Our correspondence seems to indicate that this is a common form of roup just now. Yaws also which really ought not to occur, is very common this year. Put Epsom Salts in the drinking water ; feed as above ; and touch the eruptions on the head and face of the chickens daily with tincture of Iodine on a feather. In three days the scale will peel off and leave the part below clean.

C O T T O N

WE have worked eagerly to get Sea Island Cotton grown in Jamaica, and we are therefore much disappointed that the industry has not taken hold as we anticipated. We wrote in June Journal of some of the set backs we have had. We have been keen on the growing of Sea Island Cotton, because it would have meant so much to the country, more perhaps than any crop we have now growing. In the first place, it would have been most suitable to grow in those

districts here where there is not much choice of crops for cultivation, in the dry districts along the coast of St. Thomas, St. Andrew, St. Catherine, Clarendon, and in the Savannahs of Manchester and St. Elizabeth, also on the coast of St. James and Trelawny. Apart from places where sugar is grown in these districts, the small settlers raise nothing for export. Beyond rearing a little stock and cultivating patches of cassava, sweet potatoes, gungo peas and tobacco, they do little, and are consequently of little use to the island. The tobacco raised too, is not cigar tobacco, but mostly for their own consumption. Through Sea Island Cotton these people would become of value to the island, they would be producers of exportable crops, they would be better people, and have more money to spend with the proceeds. The sugar estates in those districts would have an alternative crop to sugar, and much of the island which is fallow would become productive. In the second place, the cotton seed would do three things for us. It would provide oil to take the place of the cotton seed oil imported to such an extent now, and would also provide a cheap oil to make our own supply of soap. In the third place, after the expression of the oil, the resulting cotton seed meal would provide a stock food, though perhaps we need little of this kind; but more important, would provide just the type of fertilizer that many of our soils want, an artificial fertilizer certainly, but not a mineral one, but vegetable, with some bulk. In the fourth place, of course, it would employ in these parts, just the kind of labour that we have a good deal of at present unemployed, not men labour, but women, girls, and boys.

The means at our disposal to push this industry have been very limited. To start a new industry or revive an old one, especially one that has got a set back, requires push and persistence. The agricultural instructors are very few, they have not only to cover a great deal of ground,—far too much for their time,—but to cover too many products. Such an industry as Sea Island Cotton, would have required a special man to be employed to do nothing else for a period but push it, and we think the time is now ripe for this. We know that Sea Island Cotton grows well here; we know now what enemies we have to meet, and we know how to circumvent them; we know the prices to be realised for Jamaica cotton has been marketed; we know also what the other islands in the West Indies have taken off per acre in quantity, and we know the value received. We know that *they* are making a success of it; we know that *we* have lands and climatic conditions exactly suitable for its growth. Such an industry is worth very special effort, and yet little or nothing is being done, except what we do by keeping its importance before the public, arranging for seed and giving information to those interested by correspondence. There is one district, to take an instance, within a score of miles from Kingston, where on calculation, a matter of £50 spent on special instruction in working up this industry, in growing an experimental plot of one acre and distributing seeds, would probably make a wretched lot of people take

up this industry permanently, not to the exclusion of a single cassava hill or gungo pea bush, but in addition to their present small plots of food crops. That district is from Bull Bay through Yallahs to Morant Bay. Just above that district, there is a little being grown by two enterprising planters who, both, will compete for the gold and silver medals offered by Sir Alfred Jones. We trust there will be a good many others.

CARE OF HORSES.

THE nosebag has done a good deal to banish colic among horses, and it should be carried when horses are a long way from their stables, because it does away with the enormous feeds formerly given to horses coming in tired after a hard day's work.

Watering.—A restricted allowance of water is a fertile cause of colic from impaction in horses fed on dry food. It is by far the best plan to have water always standing near the horse, of which it can drink at will, but it must be kept clean and frequently changed. Horses so provided drink relatively less than those watered at irregular intervals. If there are insuperable objections to this plan, then water should be offered previous to feeding, and the horse permitted to satisfy his requirements.

The quality of water is of some importance, owing to its effects on the digestive and urinary organs. Cold spring water, which is often "hard," is not the most suitable for horses, who, if permitted a choice, exhibit a marked preference for rain water or pond water, which has been warmed and softened by exposure to the atmosphere.

The character of the water supplied has certainly an influence on the health and condition of horses, and it is not all tradition or prejudice that causes trainers of race-horses to carry with them to places where their charges are to run, the water to which they have been accustomed at home. Horses have no particular preference for dirty water, or for that from the pond receiving the drainage from the stockyard and buildings, but they like soft water. Water from a clean pond, or well-stored rain water, is decidedly preferable to cold spring-water, and horses supplied with the softer fluid look much better in their coats than those getting hard water.

Grooming.—This, in the mind of the average stableman, is inseparably associated with appearances, but it serves more important purposes than that. It stimulates the skin, removes old coat, and the dust and debris that would choke the pores and interfere with cutaneous respiration. The "grease" in the coat of the horse running out and feeding on grass serves a useful purpose, but the stabled-clothed and highly corn-fed animal needs grooming, and plenty of it, to keep it in health and condition.

Some diseases of the extremities—notably mud fever, cracked heels, and grease—are connected with grooming and stable management, particularly with close clipping of the limbs, trimming of the heels, and washing the legs and leaving them wet. These are best prevented by clipping Irish or hunting fashion, and adopting the dry system of cleaning now practised in the best hunting stables.

Irregular or intermittent work is very detrimental to horses, as such animals, however well fed, are never in condition. Idling in the stable is not good as a preparation for fast work or sustained exertion. The "condition" wanted is not that of the showyard, but of the hunter and the athlete. Old horses can stand more rest than young ones, whose work should be moderate and regular, but even aged animals are apt to suffer if highly fed and irregularly worked. It is bad policy to feed idle horses—or on rest days—as heavily as when they are at work, and it is a mistake to suppose that strength and energy can be stored up so as to form a reserve on which a draft can be made in an emergency.

There are, of course, many equine diseases which cannot be prevented, not even those of the respiratory and digestive systems, but a great deal may be done in this direction by careful feeding and intelligent management.—"Mark Lane Express."

FEEDING HORSES.

JAMAICA grown red corn contains more nutrition than American corn, the latter being more floury or starchy, but the Jamaica corn is much harder, and but for the fact that our horses are not so highly fed, and do not need to be so highly fed, as in the north, their teeth would suffer from the constant grinding of our hard corn. We cannot emphasize therefore too strongly the necessity for grinding native corn. We notice that when the corn is not ground, the horses pass a great deal undigested, to the great benefit indeed of the fowls which frequent the stables, so that it is not entirely a waste, but it is hard on the horses to have to chew and try to digest at least 25 per cent. more corn than they get any good from. The hard, outer covering of the grain makes it difficult to digest, and anyone who tries to bite through a grain of our corn, will find that that very lack of flouriness which makes it richer in gluten than American corn, also makes the grain much harder. In feeding Jamaica corn whole, the horses lose 25 per cent. to 50 per cent. of its nutritive value, whereas the grinding of it in a mill saves a great deal of grinding by the horses' teeth, the animal is able to more thoroughly masticate it, and so it is prepared for quick digestion. Horses will work better and keep in better condition on three or four quarts of ground corn, than they will do on five or six quarts of whole corn.

INFLUENCE OF STOCK UPON ORANGES.

UNDER the heading "Curious Oranges," the Agricultural News states, that "Mr. A. W. Bartlett, B.A., B.Sc., Government Botanist, British Guiana, recently forwarded to the Imperial Commissioner of Agriculture, three curious oranges, which are said to have been produced by grafting the sweet orange on to the rough lemon stock,

and which afford an interesting example of the influence of the stock on the scion. The fruits had an external appearance rather of a citron, viz., a thick, coarse, rough skin. The pulp portion was also coarse. The largest fruit might, in this respect, almost have been taken for a shaddock. The flavour and texture of the pulp of the smaller fruits were like those of the orange, though poor."

The grower states that 'the constant result of grafting on the rough lemon stock is to produce coarse-skinned fruits.' It would be interesting to know if similar results have been met with by readers of the "Agricultural News."

There are, however, thousands of budded orange trees growing in Jamaica on rough lemon stocks, without any particular difference being noticed on the quality of the fruit from trees on sour orange or shaddock stocks. As a rule, however, after experience, rough lemon stocks would be only used here in the higher elevations, and sour oranges or shaddock lower down. The rough lemon is a quicker grower than the others, and reckoned not to be so long-lived in the lowlands, though nobody has budded trees old enough to have proved this.

THE PROGRESS OF THE BANANA.

THE most astonishing development last year in the fruit trade of the United Kingdom was the banana business. The banana has become the most popular fruit handled in British markets. At one time the apple and the orange were favourites, now the banana heads the lists easily. Over 5,500,000 cwts. of bananas were imported into Great Britain during 1905, against 4,250,000 cwts. of oranges, 3,250,000 cwts. of apples, and 1,100,000 cwts. of tomatoes. Yet the banana business is only in its infancy. The day may come when 20,000,000 bunches of bananas will be consumed annually in Great Britain. Great Britain paid last year for bananas £2,000,000, the three sources of supply being the Canary Islands, Jamaica and Costa Rica.

Of that 2,000,000, Jamaica only supplied £225,000 worth. We have no figures at hand to show the value from the Canary Islands or we could show what the United Kingdom received from Costa Rica, but it was evidently more than from Jamaica. Even £250,000 to one place is far greater value than all the rum we send out—yet Jamaica rum needs protection—but not Jamaica bananas or oranges.

CURING SKINS.

SOME correspondents have asked the method of curing goat and sheep skins. Here are two ways, suitable also for rabbit, rat and mongoose skins.

Curing Goat's Skin.—The following recipe is for curing rabbit and goat skins. First soak the skins in cold water until soft (if just taken off they will not need soaking). Then scrape the flesh and

grease off. This can be done over a half round post. Set one end on the ground and have the other as high as the hips. Place the skin over the post so as to lean against the end of the post, and hold the neck of the skin. In place of a bream knife a long carving knife can be used by winding a cloth on the point, so that both ends can be held to scrape the skin with the middle of the knife. Next make a liquor, by dissolving one pound of alum and one pound of salt together in two or three gallons of water. Set the liquor to cool and put the skins in. Stir them so that the liquor reaches all parts of the skins, and let them remain in the liquor from six to ten days, or longer, if in no hurry for the skins. Then dry them in a cool place. Dampen them by hanging up in a cellar overnight, and then stretch them out. This can be done over a spade turned handle down. (Or a stretcher can be made by nailing a piece of $1\frac{1}{2}$ in. plank $2\frac{1}{2}$ in. long by 8 in. wide, in the centre of a 2 in. plank, 10 in. wide by 3 ft. long, in the form of a "T," and sawing a slit in the top of the upright piece, and fitting in a piece of iron or an old hoe blade.) To clean the fur, put 6 in. or 8 in. of hardwood sawdust (the finer the better) into the bottom of a barrel, and put the skins in, putting more sawdust among and over them; then stand in the barrel, and tread them until the fur is clean. The liquor will keep a long time, and as used can be renewed by adding alum and salt. Take of saltpetre, one part; salt, two parts; alum, two parts; pulverise finely and mix thoroughly. From the skins remove all flesh parts; if they have been dried, you must soak them in water to soften them. Then give the skins a thin coating of the mixture, turn the sides in, roll them up, and lay them aside for a few days. The thicker the skins the longer they must lie. A little practice will be the best teacher in this. Now take them and rinse thoroughly, remove all the mixture; wring them out, well rubbing them between the hands and pulling them in every direction until perfectly dry. By following the above directions you will have skins as soft as velvet. The more you rub and pull them the softer they will be.

Preparing Sheep Skins — Here are a few hints on the preserving and packing of sheep skins. The fresh skin should be laid out, skin up, on the floor for a few hours to set, and then be hung up to be painted. The preservative recommended is 1 lb. of common soda, $2\frac{1}{2}$ lb. of arsenic, boiled gently for four hours in $3\frac{1}{2}$ gallons of water, stirred frequently. To treat a skin, use one pint of this mixture and add three pints of water, which would be enough for 350 skins. This mixture keeps indefinitely in an earthenware or glass jar. A few days, after painting, the skins should be examined, and any parts missed should be painted. A skin treated thus would keep for 12 months free of weevils. To dry a skin, hang it from neck to tail, and in baling turn the wool side out, folding in half. In tying bales there should be strips of wood top and bottom to prevent the pressure of the wire or rope chafing the skin and reducing the value of the bale.

INFLUENCING MILK.

YOU can improve the milk yield by feeding a combination of foods suitable for the size and temperament of the cow, but the kind of food does not influence the richness of the milk, *i.e.*, the butter fat in it, except to the smallest extent. The richness of the milk lies in the cow itself, its individuality. If you reduce the food you do not reduce the richness of the milk, but you reduce the quantity yielded, the percentage of cream remains the same. Old fashioned people, however, will not believe this, that certain kind of foods do not make the milk richer in cream, and there are certainly some things yet to be clearly understood which would justify them in believing so, although all the carefully noted feeding experiments carried out so far have failed to influence the quality. What we ourselves believe from close observation is that we can influence the temperament of the cow by certain environment more than feeding, and therefore through this, influence the quality of the milk. We think this point has not struck experimenters. Observations in Jamaica also tend to make us think that the soil, climate and other characteristics of the place where the cows are kept, have an effect on the milk yield independently of the breeding and feeding of the animal. On the white limestone soils, cows are said to yield milk richer in fat than they do on the best alluvial soils, or gravel, or even yellow limestone soils, although on the latter the soils are much more fertile than the red soils lying on the white limestone, but observations and impressions are often wrong when it comes to actual test by experiment.

A CHEAP DRESSING FOR TICKS.

IN the Journal for June you (The Editor) say, "We are trying to find a simple and cheap preparation that will be fairly effective to keep off ticks, from materials which every settler can have at hand." Everyone seems to have his own idea of the best remedy for these pests, but as far as I can gather, the dressing most generally used is a somewhat complicated and costly mixture of tar, oil, kerosene oil, Jeyes fluid and sour orange juice. The actual cost of this mixture for an average sized herd of cattle must be considerable. For the last eight years, I have been using a dressing, the annual cost of which amounts to only a few shillings, and which I think, is just what you are trying to find. It is simply coal tar and water. At first, I put the tar in an ordinary open vessel and poured the water on it. This was then well stirred, and after settling, the brush was dipped into the water and painted on the animal. Nothing could be more satisfactory for killing the ticks, and doing no injury to the animal than this simple and cheap mixture. But I soon found that the penkeeper, with his usual perversity would not do as he was told, but would use the brush itself to stir the tar with, and consequently, the

brush got loaded with pure tar, which, when applied to the animal, caused the skin to strip, and so I had a special vessel made of stout zinc, one foot in height and six inches in diameter. A funnel-shaped diaphragm with an opening in the centre, one inch in diameter, is placed about one-third from the bottom. In the lower compartment the tar is placed, and water (the exact amount does not matter) is thrown in. A cover is then placed on the top, and the whole vessel can then be well shaken. In a few minutes the bulk of the tar settles to the bottom. The brush is now soaked in the water in the upper compartment, which contains just sufficient tar for the purpose, and applied to the animal. This makes as good a tick dressing as anything I have seen. The brush must be a thick one, say two inches in diameter, so that it is impossible for the man to insert it through the opening in the diaphragm, and so get it loaded with pure tar. I made the brush out of a stout joint of bamboo and horse hair. A bit of stout cord is sent through the bamboo in a loop. The bundle of hair is placed in the loop and pulled into the bamboo and then trimmed. The vessel costs me 1s. 6d., the brush costs nothing, and the tar—well, one gallon costing 6d. (if purchased in bulk), will last a month or two, according to the size of the herd. As the water is exhausted more is poured on, until the tar is all used up. As I have said, I have been using this dressing for about eight years, and I am so thoroughly satisfied with it, that I have no desire to use anything else.

In the same article, it is stated that a tick lays over 2,000 eggs, and in the same Journal, Mr. Taylor-Domville says, "It is not generally known that a single tick produces 5,000 grass lice." Some years ago I took the trouble to count the young of one tick. I placed a female tick in a phial, and when the eggs, which she laid, had hatched out, I washed them all out into a glass vessel. Most sank to the bottom in lumps. I then, with a needle, placed a small lump at a time on a large sheet of white paper, and as they were crawling away, I killed them with the pointed end of a small knife blade. As I killed I counted. I only counted a portion the first day, another portion the second, and finished on the third day. Those last counted, although they had been immersed in the water for two days, were as lively as those counted on the first day. Apparently, they could absorb sufficient oxygen from the water to satisfy their respiratory requirements. The total count amounted to 7,618. This, of course, cannot be taken as the average number produced by one tick, as it was only one count, and I have never since had the courage to repeat it. But it is interesting, and at the same time very irritating to know, that one tick can produce such a large number of these little tormentors.

F. A. SINCLAIR.

Little London.

(Refer to "Comments.")

If Americans cannot grow rubber in the Philippines, will it be an admission that they are less capable than their British cousins in developing the possibilities of their tropical possessions?

O R A N G E S.

THE United Kingdom imported 4,250,000 cwts. of oranges in the year ending 31st December last. In 1903 it imported 5,250,000 cwt., the reduction not being in the demand for oranges, but in the persistent decline in the arrivals of this fruit from Spain, from which the bulk of the orange supplies to the United Kingdom are got. The price paid for these oranges was £1,750,000.

The South African Colonies and Australia are anxious to supply oranges to Great Britain, and will in the near future do it, yet in Jamaica, people have made up their minds that there is no market for oranges, and that the fruit is not worth growing, let alone cultivating.

STOCK NOTES.

BREEDING THEORIES.—The conclusion drawn from facts about famous horses, is that age in parents has not the slightest influence on the degree of excellence of the progeny, and therefore, that in choosing a stallion for his mare a breeder should not let the horse's age, one way or the other, weigh on his mind, but should confine his attention solely to his conformation and pedigree, selecting a sire strong in those points in which his mare may be deficient, and rich in that blood which will best combine with hers. If some breeders would pay more attention to these elementary points, instead of sending their mares to the nearest champion simply because he is a champion, and without a thought as to whether he is suited to them either in pedigree or appearance, we should hear of fewer disappointments in horse breeding, as this line of procedure never leads to anything but quite undeserved abuse of the stallion.

* * *

WORMS IN PIGS.—We have lately had complaints of a disease existing in Trelawny among pigs. The pigs first became weak and then paralysed in their hindquarters. We surmise from the description that they are infested kidney with worms. Turpentine in castor oil may be administered as a vermifuge, but for tape worm the hogs will cure themselves by a remedy which can be easily at hand for everybody, and that is pumpkin seed. Feed the whole pumpkin and the swine will finish off the seed also, and this is a certain remedy for tape worms in all animals not carnivorous. So everyone who owns sheep, goats or swine should raise pumpkins to feed their stock occasionally. Pumpkins, however, will not cure kidney worms, which will require a tablespoonful of turpentine in three or four tablespoonsful of castor oil. Fast the pig previously from six in the evening till ten the next day. The turpentine can also be quite safely given along with a quart of cornmeal gruel sweetened, so that the

pigs will readily take it, but in this case the pigs will require a dose of four tablespoonsful of castor oil four hours afterwards. The turpentine remedy should be continued once a week for four weeks. The dose mentioned is for full grown pigs.

WATCHFULNESS.—With so much filth sent here as food, it shows how important it is to keep our flocks and herds free from diseases which might attack them ; for it is only with the greatest difficulty that the people can be supplied with meat which is beyond suspicion.—Mark Lane Express.

DEMAND FOR HORSES.—Despite the great increase that has taken place in the use of mechanical power, the demand for horses, far from falling off, seems continually to increase. The prices at the present moment, especially of the animals of a good type, remain entirely satisfactory. Horse-breeding is likely to continue one of the safest branches of English agriculture.—“Country Life.”

BIG BONE.—It is curious how some otherwise good judges of horses are carried away by their partiality to big bone to such an extent, that they will almost forgive any defect if the horse is only big enough.—Mark Lane Express.

HORSES WANTED.—That we shall continue to require horses in great numbers for many a day to come is certain. For the Army there will always be a great demand, and the motor car has not lowered the demand for high-class carriage horses. Hunters will also always be wanted. I also know gentlemen who have sold their motor cars, and set up their carriages again. The fact is, that as motor cars get cheaper, and the absurd craze for excessive speed modifies, which it is doing to some extent, the motor car will cease, in a great measure, to be the toy of the rich. It will be used for business purposes, and no doubt it will to a considerable extent supersede the horse omnibus, especially in London. This, of course, will have an effect on the horse market. Omnibus horses are, it need not be urged, something of the nature of misfits, and the price of the second or third rate horse will in all likelihood, fall considerably. But I think that, so far as present indications enable one to judge, the demand for high-class horses is likely to increase rather than diminish, and that their price will be well maintained. At any rate, the man who is fortunate enough to have a good horse now has no difficulty in disposing of him at a very useful price.—Mark Lane Express.

SIZE OF HOOF.—It is not at all uncommon to find what are called odd sized feet belonging to the same horse, these being usually fore-feet, and they may be perfectly free from disease. Having one foot smaller than the other is often congenital, and this neither predisposes to disease nor is an indication of any morbid condition

unless the animal is lame. This inequality may also be due to the shoer, or through a shoe having been lost, and the horse worked without one on the road. Large hoofs with prominent frogs are generally found in moist countries. Narrow, small feet, with hard, dry horn, and rather diminutive frogs and concave soles, are usually observed in dry climates with rocky or sandy soils. Black hoofs are composed of tougher horn than white ones, and the hoof which has not had the front and sides of the wall rasped by the shoer, or its texture damaged by improper oil or hoof ointments, is generally smooth and shining. The worst enemy to a horse's hoof in Jamaica is the blacksmith, who is often too lazy, too ignorant, or too conceited, to understand that the shoes should be made to fit the hoof, and not the hoof made to suit the shoe by rasping severely after it has been fitted to the sole—which, of course, requires to be pared even.

THE CATTLE TRADE OF THIS COLONY.

At the May meeting of the Board of Management, Mr. McGrath moved the following:—"That in the opinion of this Society, the state of the cattle industry of the colony and the deplorable waste of beef in the several markets of the island, call for enquiry if the cattle industry is to be sustained, and it is resolved that the whole question be referred to the Live Stock Committee, with the object of ascertaining all the circumstances connected with the depressed condition of the industry, and to make any possible suggestions for its betterment."

The following is the report of the Committee submitted to the Board of Management at the June Meeting with further revisions approved of at the July meeting:—"The wide scope of the reference and the difficulty in dealing with a large subject on which varied opinions were likely to be held according to experiences, differing in different parts of the island, suggested to the committee the advisability of consulting representative penkeepers in various places. A memorandum of questions, a copy of which is hereto attached, was therefore circulated and the Committee have to thank the gentlemen, about thirty in number, who have been so good as to respond to their enquiries. They also have to thank the Colonial Secretary's Office and the Collector General for the statistics and particulars they have furnished.

The copy of the memorandum is as follows:—

Jamaica Agricultural Society, 4 Port Royal St., Kingston.

SIR,—I have been instructed by the Board of Management of the Jamaica Agricultural Society, to ask you in connection with an enquiry into the present condition of the Penkeeping Industry, to kindly give the following questions your serious consideration and send the replies to me at your earliest convenience:

A.—What particulars can be supplied with regard to the supply of and demand for butchers' meat in the district represented in your report.

1.—Does supply exceed demand?

2.—At what price per 100lbs. estimated are stock sold for butchers' purposes?

3.—What is the retail price per pound?

4.—Can you give the price for any local contracts?

B.—Can you afford any information as to the export of stock that has recently taken place—the number and class of stock exported—the price paid?

C.—Is the supply of butchers' stock larger than formerly—if so, why?

D.—Would a heavy trade license on the dealers in butchers' stock be approved? What good or evil might be expected from it?

E.—Would a small Retail License for butchers applying only to the exposure of meat in public and mainly for purposes of Registration be approved? What good or evil might be expected from it?

F.—Would the compulsory inspection of meat be approved?

1.—In towns?

2.—In country villages?

3.—Is such inspection in your opinion necessary?

4.—If recommended, what provision would you suggest for the inspecting officer's remuneration?

5.—What officers would you propose for appointment?

G.—What combination amongst producers for the steadying of prices do you think possible? How do you think it might be attained?

H.—What is the lowest remunerative figure at which fat stock can be placed in Kingston per 100lbs. estimated dressed weight?

Yours faithfully, JOHN BARCLAY, Sec.

I.—Taking the points dealt with in the circular in order: (A.) With regard to the present relation of supply and demand of butchers' meat and the prices now obtainable by producers, the general opinion is that supply exceeds demand. Several men consider that the explanation of the present low prices lies in this. Some suggest that the only remedy is in diminished production, (and that this will be the inevitable result of continued failure in prices;) or in stimulating consumption; or in our finding fresh market for stock. The export to Cuba in the last two years has been considerable, but our cattle there have to compete with the low priced Central and South American stock.

But while many local markets are over stocked with beef, (taking good, bad and indifferent together) it is clear that the supply of really prime beef is unequal to the demand, particularly in towns and centres where there is any considerable trade of the better class. Cattle are now sold long before they are really fit to butcher, and they are sold cheap, to realise money or to reduce herds; the prevailing general depression of the last few years being probably the explanation. It is noticeable that the Eastern parishes, St. Mary, St. Thomas, and Portland, where there is comparatively little breeding, relieve the adjoining parishes of St. Ann and Clarendon of complaint in this respect. Much loss is caused to this country by the insufficient supply of prime beef, which leads to importation at prices which would amply repay the stock raiser here. A little pre-arrangement would probably secure a satisfactory supply.

The prices at present obtained for fat stock appear to range from 26s. to 35s. per 100 lbs. estimated dressed weight, varying of course, according to quality, but more according to facilities of sale: only two or three gentlemen claim to get over 30s.; 28s. to 30s. appears to be the most common figure. This represents a fall of from 20 to 25 per cent. in prices now obtained by producers as compared with a few years ago. Attention is called to the unsatisfactory system of estimating the weight of stock which is generally said to be in favour of the buyer.

The retail price of beef varies in the same way, from 6d. per lb. in a few favoured places, and for a few select portions or a few select customers to 3d. or even 1½d. per lb. The time of the day and the weather and the amount of meat that happens to be in the market on the day would appear to be usually the prevailing influence, not the quality of the meat. And it is observed that in country villages a good deal is sold by the portion, the weight of which is not always what it pretends to be.

The contract prices for the supply of institutions, vary from 50s. and 40s. for boneless beef to 34s. for ordinary mixed and 30s. and 28s., 4½d per lb. is quoted in several cases, and one quotes 4d per lb. It appears from the replies that we have received, that about 35s. per 100lbs. dressed weight delivered at Kingston is the lowest figure at which stock really fit for the butcher can be supplied with any reasonable remuneration to the producer under the present system of pen-keeping in the Island, and its difficulties and the present cost of production of fat stock.

From what we know of the present rates of wages on pens and the increased labour in attending to stock now necessary, we can see little possibility of reducing the present cost of production,

II.—A good deal has been said about the exportation of cattle, almost entirely to Cuba, which has taken place recently; unfortunately the exact figures are not attainable, but not less than 2,767 head were exported in the last year. The cattle were chiefly cows, and heifers from 18 months to three years old, the price for the latter being often as low as from 50s. to £3. The import duty on steers and bulls in Cuba is \$10 per head. Heifers are now reported as scarce in several parts of the island. Enquiries made on behalf of the Society last year do not hold out prospects of any profitable development of an export trade in dead meat.

III.—With regard to the present stock of cattle in the island, the majority of our correspondents consider that the supply is somewhat larger than formerly. The number of estates, particularly in the western parishes, that have been converted into pens is mostly given as the explanation, and also partly the recent reduction in the death rate amongst calves due to the Indian cross. The figures of the Handbook, so far as they afford evidence, do not bear out this opinion, as these indicate a reduction of 14,000 head of cattle of all sorts in the island during the five years ending in 1905 and *before* last year's exportations. The returns of cattle slaughtered on the other hand indicate an increase of about 2,700 in the annual number slaughtered in the same period. Part of the explanation of such figures may be that great waste is going on, a larger number of inferior stock and of younger and lighter stock being slaughtered now out of a smaller herd in order to realise money.

Our opinion is that the stock of cattle of all sorts in the island remains about the same as during the last few years; perhaps it is somewhat smaller, the increase in the herds, especially in the western part of the island, being compensated by the withdrawal of the land from stock-raising for cultivation in other parts, and the mortality amongst calves due to the ravages of ticks which being still considerable.

IV.—The matter of a heavy trade license for persons dealing in stock having been proposed as a possible remedy for the present situation, it was referred for the opinion of the gentlemen we addressed. The great majority object to it, as likely to further hamper trade in cattle and to tend to produce a monopoly, it is further represented that such a license would ultimately be a charge on the stock, tend to lower prices, and probably be paid many times over by producers. We do not recommend such a License.

V.—The question as to whether a small license on retail butchers, partly for purposes of Registration, would do good, meets with a very different answer. A large majority are in favour of it and the retail butchers themselves are said to desire it. It is represented that producers suffer from the absence of such a license, because local butchers not knowing when their trade for the day may be ruined (as it often is ruined) by unexpected over-supply of meat, in the market, protect their business by regularly buying at lower rates than they would otherwise be in a position to give; that it is such occasional butchers who mostly sell indifferent meat, often the meat of animals suffering from disease or otherwise unfit for food; and that considering the perishable character of the stuff in which they deal, some regulation of the butchers' trade is justified as a matter of public concern.

We think that such annual Licenses should be imposed, that the amount should not exceed 40s., that it should apply to all exposure of meat for public sale, and should apply to the sale of goat flesh and mutton and pork as well as to beef; the license being liable to forfeiture if the holder or his agent is convicted of offering meat unfit for sale.

We ask that the Board will recommend to the Government regulations which will carry into effect this proposal.

VI.—Another suggestion that has been made and which also formed a subject in our enquiry, is the inspection of meat. That compulsory inspection is desirable and necessary in places where no provision for this exists is almost the unanimous opinion. It is already done in some towns, and we think that Parochial Boards should be asked to arrange for efficient inspection in every town. In villages and country parts the difficulty in the way of securing, and of adequately remunerating an officer competent for the purpose appears to us at present insuperable; and

we are unable to make any further definite recommendation on this point. Perhaps the institution of butchers' licenses will go some way to remedy the evil that undoubtedly exists.

VII.—Another question put by us to the penkeepers asked them to indicate what combination amongst producers for the steadying of prices they would consider practicable, and the means by which it might be attained. This question was asked in order to direct attention to what, is no doubt, the best remedy for the prevailing depression and one lying in the hands of the producers themselves, rather than because we considered it a point on which we, as a Committee of your Board, should specifically report. We think that combination of this kind must be left for private individuals to initiate. We gather from the replies we have received, that combination should not be difficult amongst the larger producers or a sufficient number of them to steady prices, (and particularly contract prices) and to allow reasonable remuneration to the very large number of people of all classes interested in and dependent upon stock-raising in the island; and this without detriment to the consumer who, we consider, is not proportionately benefited by the present irregular trade and the waste that is going on.

We close this report by giving prominence to a few points that seem to us of importance,

VIII.—We think that in view of the interest at stake and the certainty that the local supply of prime beef only waits for encouragement and arrangement to be adequate to the demand (a) the Government should consider whether imported raw meat should not take its place amongst rated goods, with an import duty sufficient to discourage unnecessary importation. (b) The removal of the existing import duty on stock imported *bona fide* for breeding purposes, is also a point we would wish to recommend to the favourable consideration of the Government, particularly at this time when the Society is thinking of offering premiums for the importation of desirable breeding stock. (c) We have already suggested that in all towns the Parochial Boards should be invited to arrange for the regular inspection of meat. (d) We would strongly recommend that regulations be introduced for licensing and registering of retailing butchers.

IX.—Except in these points, we regret that we are unable to recommend anything in the way of Government action for the benefit of stock-raisers. The points which follow must, we think, be left to the initiative of private persons interested and those whom they can influence. (a) We think that everything should be done to discriminate the price of meat according to quality and cut. (b) That the practice of selling butchers' stock by actual live weight rather than on estimate should be encouraged in every possible way. The cost of a suitable scale and of its erection need not exceed £20. Such scales, we think, should be provided at slaughter houses by the proper authorities out of the fees they receive. At suitable centres or at Railway stations where large numbers of cattle are shipped they might be erected perhaps by private subscription; they would encourage transmission of stock by train. (c) That anything that can be done to encourage the early establishment of cold storage institutions in suitable places, deserves the co-operation of people interested in stock. (d) That increasing attention should continue to be paid by penkeepers to what, on most pens, are by-products, such as milk, and butter, fruit, the raising of sheep and pigs. The establishment of central creameries, where possible, appears to us to deserve all the support that the enterprise can get. But we do not think that under our local conditions heavy milking can be free of danger and injury to calves—the stock of the future—unless the matter is taken up very systematically and the calves raised by hand. This caution may be less necessary in places where the stock are exceptionally strong as they generally are where Indian blood has been introduced. (e) We think that increasing attention to the destruction of ticks, by every means that can be adopted for the purpose, is a matter that greatly concerns the future of the Stock Industry. Their injurious effect in retarding the growth, and in diminishing the general vigour and size of cattle is, we think, increasingly apparent, to say nothing of the mortality for which they are responsible, and the large increase they cause in the expense of raising stock.

(Signed) J. R. WILLIAMS,
C. A. T. FURSDON,
EASTON W. MUIRHEAD.

COMMENTS.

LEMONS.—The sale of lemons in northern markets is always affected by the weather. The hotter the weather the more the demand, and the higher the price. Sometimes good sales may be made as early as May and June, but almost certainly the price goes high in July and August, and often in September also. We have written a good deal about cultivating lemons so as to get them in in summer, and this we find is not difficult to do. On behalf of a planter in Manchester we have sent a consignment of lemons to London, and hope to send more. Prices being realised are 16s. to 23s. per case of 300 and 360.

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PREMIUMS ON STOCK.—We are glad that the offer by the Society of premiums for the importation of live stock has already taken effect. There will be more importations of pigs than there are premiums, and a selection will have to be made. We think too that the premiums on the importation of bulls will also be more than all applied for, for we know of four likely to be imported, conforming to the requirements of the Society. In spite, however, of epistolary discussions with many interested in goats in different parts of the island we have not any orders to import this class of stock yet. We only know of one importation to be made.

* * *

TICKS.—Referring to our numerous references in this Journal to the necessity of keeping down ticks by picking and washing, and to the narration of the various practices of prominent penkeepers in this connection, with the cost of tick washes used, and also to our efforts to find an effective wash, so cheap, that small settlers could use it because they will not use anything that will cost much, we are glad to print a communication on the subject this month. This gives the practice carried out for many years on an estate in Westmoreland, as using only Gas Tar and water at a trifling cost. We shall now be glad if other penkeepers who have been using mixtures containing Gas Tar, and so we have that article in stock, would try the simpler and cheaper dressing and report to us results. If this is as successful as stated, it will save penkeepers much outlay. We would then get country storekeepers to stock Gas Tar, and we would advocate its use by small stock-keepers who at present, never wash their cattle at all, and we are afraid never even tick them

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SHOWS.—The Christiana Branch is considering the advisability of holding a small Show in the month of November, a few days before Kendal Show to act as a feeder, but this will depend upon what the Kendal Show Committee propose to do with their Show, *i.e.*, whether they are going to make it a purely stock Show or include, as before, Agricultural Products.

* * *

SEEDS.—We again desire to call attention to the fact that

orders for seeds, and especially potatoes, must be placed with us before the end of August if wanted in quantity. Those who wish small quantities of seed will facilitate the traders who have advertisements in this issue, Messrs. C. C. Cody, King St., for American seeds, and W.H. Johnson & Co., Ltd., for English seeds, if they give some indication of what they may require. Branch Societies can also order in quantity through us. For seed potatoes, a deposit of 12s. 6d. per barrel must be placed with us. It invariably happens that after our order is made, and the potatoes have come, people will write at the last moment when their ground is ready, order a barrel, as if we kept barrels in stock. We only import to order, and we do so simply to facilitate planters as no merchant deals in reliable seed potatoes.

* * * *

ANNUAL REPORT.—The Annual Report of the Department of Agriculture, New Zealand, is a splendid volume. The illustrations are interesting and of a high order. Nowhere in the world is the value of co-operation and organization better exemplified than in New Zealand. As in Denmark, the State has taken the lead in securing this co-operation. While excessive state control may not lead to the highest efficiency in the individual, there is no doubt at all that it is necessary in undeveloped countries. * It has enormously developed the agricultural conditions of New Zealand. In the dairy industry, for instance, the State assisted in the building and equipping of dairy factories, and has given advice as to the feeding of the cows, has provided bulls for breeding purposes, and has supervised the whole process of manufacturing cheese and butter, up to the final stage of grinding and sorting prior to shipment. This grading is one of the first features in the success of New Zealand; it applies to wool, meat, poultry, eggs and hemp, which are all graded by State Inspectors. The value of State inspection is appreciated there, and the individual is not permitted to injure the State for a little temporary profit of his own. The “liberty of the subject” is a fine phrase, but in New Zealand liberty is consistently defined, and no man is at liberty to hurt the State for a few pence more profit to himself.

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VAPORITE FOR ANTS, CATERPILLARS, SLUGS, &c.—“The vaporite which you sent me has not got a fair trial. The vegetables began looking up well, the insects having ceased their unpaid feast, but alas! the weather has killed off all the cabbages. I find the vaporite excellent in the treatment of ants. I sprinkled a little on their nests, and they had to seek a new abode. I sowed seed in two boxes. One of them I sprinkled with the vaporite and stirred lightly, the seeds grew. The other I planted without any doctoring, —not a seed grew—eaten up by ants.”

* * * *

GRAPEFRUIT.—“Grapefruit are now realising 30s. a case. Limes, at 9d. per dozen, and yield from 5s. to 8s. per case, but I am not quite sure what each case contains. Pines are dead at present owing to Strawberries being plentiful.—(Sgd.) B. C. ORGILL.

BRANCH NOTES.

ST. GEORGE'S.—The regular meeting of this Branch Society was held at Buff Bay Court-Room, on Saturday, 14th July. Present; the President, Mr. I. W. Hill; Vice-Presidents, Messrs. C. A. Miller and T. C. Geddes, also Messrs. Stedman, Cohen, Burgess, Sutherland, Haase, Russell and the Secretary. The matter of the postponement of the Show and the action taken by the Jamaica Government Railway was freely discussed. The following resolution was passed:—"That this meeting views with surprise and astonishment the attitude of the Jamaica Government Railway in regard to the agricultural interests of our people as shown in the circumstances which led to the postponement of the St. George's Agricultural Show, which was to be held at Woodstock, on the 1st August, next, in requiring the Committee to lodge a guarantee in advance for the running of special trains, and further the unnecessary delay to reply to important communications sent them from this Society." That the Secretary of the Jamaica Agricultural Society be asked to submit this resolution with the correspondence to the Board of Management of the Jamaica Agricultural Society at the next meeting. The meeting was of opinion that the Society should secure a pair of Angora goats to improve that class of animals in these parts. The Show Committee met and examined the accounts in connection with the preparation for the Show, after which it was dissolved.—W. J. THOMPSON, Sec.

DAVYTON.—This Branch which has never met for many months passed, held a meeting at the Teacher's cottage, 7 p.m., on Thursday, June 28th. There were present: the Vice-President, Mr. D.D. Phillips, M.P.B., in the chair, Messrs. J. Thomas Hemans, treasurer, J. Hemans and H. Haynes. The visitors were Messrs. T. Atkinson, teacher, W. Burrell and J. Thompson, also Miss A. Steers. The meeting was opened with prayer by Mr. Atkinson, after which the Treasurer was asked to read the minutes of the last regular and special meetings, as there was no secretary. Mr. J. T. Hemans was appointed Secretary in the place of Mr. J. H. Walters, who left the Island in March. Messrs. T. Atkinson, W. Burrell and J. Thompson were elected new members. After some discussion, it was moved by Mr. J. Hemans, seconded by Mr. H. Haynes, that the affiliation fee to the Parent Society to be paid out of the funds in hand, and that members be asked to pay at once their annual subscription. It was moved, seconded and unanimously carried, that a Report from the Meeting be sent to the Journal for publication. The Secretary was asked to write to members, asking them to attend a Special Meeting, to be held in the school room, on Thursday, July 12th at 4.30. p.m., with an object of revising the list and to receive subscriptions. It was suggested that at the next meeting, steps be taken to arrange for the getting up of exhibits for the forthcoming Show to be held at Kendal in November. The meeting was adjourned until July 12th, when it hoped that there will be a good turn out of members.—J. THOS. HEMANS, Sec.

PORUS.—A meeting of this Branch was held in the Church Schoolroom, on the evening of July 2nd, 1906, when at roll call, seven members answered to their names, viz:—Rev. W. B. Esson, V.P., in the chair, Messrs. S. Price, W. A. Morgan, Thos. Morgan, Wm. Steele, Chas. Rowland, Assistant Secretary, A. S. Rose, Secretary. Minutes of last meeting were read and confirmed. Correspondence was next dealt with. The Assistant Secretary submitted the copy of a letter which he wrote to the railway authorities, by request of this Branch at a subsequent meeting, asking that department to allow a sidewalk from the crossings of Clarendon Park District along the railway land to the St. Tool's Bridge, this bridge having been washed away by the rising of the river on or about June 9th, 1905. In answer to which was read a letter in the negative from that body. The report of the Fair Committee was next read and dealt with. The whole report was taken by clause, all of which were approved of by members present. The wording of the placards to be printed was submitted, and was slightly amended by adding the words, "to be open on the first Saturday in August" immediately after the first clause ending with every Saturday. The Secretary was here instructed to forward this wording to the Secretary of the Parent Society, and ask him to do any necessary criticism,

and see what it would cost to print 25 large placards and 100 small handbills. The subject of gate-keeper referred to in clause five of Fair Committee report was next dealt with, and it was finally decided to call a special meeting on Monday, 16 July, for the appointment of the officer. The next business on the agenda was the Spring Grove Bridge. The Vice-President spoke of the immediate importance of the erection of this bridge, and stated that something must be done to impress on the Parochial Board, that their prompt action in this was quite in touch with their obligation to the people who are at present sufferers, owing to the want of this bridge. The Secretary here pointed out that he was informed that the Board had granted £80 for the purpose, and that the Engineer promised to be down at an early date to look after this. The election which took place on June 4th to fill the place of our resigned President, was, at this meeting, considered void, the Vice-President being the proper person to hold the office.

(Branch Secretaries must really note that no reports can be published in the current month's Journal received after the 1st of each month.)

CORRESPONDENCE.

SIR,—I caught many of the bats I wrote you about by taking your suggestion. Nailing a fishing net loosely over their chief haunt, into which they dropped at dark and were destroyed. The others apparently took fright—and I am glad to say, have disappeared. Many thanks for your advice.

Duncans,

A. C. G.

(Other correspondents on the subject of getting rid of bats in churches or houses please note,)

Newport P.O., 2nd July, 1906.

SIR,—Some years ago the farmers of Manitoba were almost in a state of panic, due to the destruction of their wheat, just as it was about two inches above the ground, by immature grasshoppers. Spraying with paris green was of little use, and it was not till Mr. Norman Criddle of Awerne P.O., Manitoba, suggested mixing the paris green with moist bran and strewing the mixture on the ground, that any progress was made in eradicating the pest. This was expensive, as bran costs 12 to 14 dollars per ton, and Mr. Criddle set about on finding a cheaper substitute. On walking along the trail one day, he found some fresh horse manure covered with "hoppers." This was the substitute he wanted. The result was that fresh horse manure was mixed with the paris green in a waggon box; one man drove the waggon over the field and another scattered the mixture, the result being the extermination of the "hoppers." From what I can gather from a friend, it is not a grub that destroys our cotton plants, but a moth that works at night. A careful investigation might discover the primary grub and its favourite pabulum, with which the paris green might be mixed and placed on the ground. It was not the full grown grasshopper that did the mischief, but the immature one, and the same may be the case in our cotton trouble, only reversed. Mr. Criddle's mixture has been adopted by the Dominion authorities. Apologising for troubling you,

H. AUBRAY HUSBAND.

Tobago, 19th June, 1906.

SIR,—I send some queries and hope to get a few pointers in reply. What I want to know:—

- 1.—Will an experienced stock-breeder give the address of the best firm he knows from which I can get veterinary instruments and medicine cases?
- 2.—What is the best general fence for large stock, and where it can be got?
- 3.—Is there any agent known for applying to an abscess or swelling on animals in order to reduce sensitiveness to the use of the knife in operation?

With cordial appreciation of your kind favours.

G. E. TURPIN.

(Replies sent here will be forwarded.)

Frankfield, 24th May, 1906.

SIR,—I am having much trouble with my school-garden. I got some seeds, from King, U.S.A., (cabbages). They germinated well, and after transplanting from box to bed they took well. Many of them are now looking quite sickly in spite of close attention. The leaves look like a blight, having a dry and sickly appearance. The leaves are like net-work, evidently the work of some insects. The mid-rib of some of the leaves has been attacked and shows signs of rotteness. On searching a worm or two may be found, but I am sure that they alone are not responsible for the damage. Strange to say, that the seeds got through the Society, (Jamaica Agricultural), which have grown into plants, are not attacked to any such extent. Some of the small plants are chopped off in the night as if pruned, that is, the young and tender plant. A day or two ago I found a turnip leaf riddled, and on examination I found hundreds of worms about half an inch in size. I took up the turnip and the rest has not shown any signs of attack. That is four days since. Could you advise me? Would Paris Green be effectual? Or would you advise any other form of insecticide? It would appear as if the cabbages are attacked by insects as well as fungi. Could I order carbon bi-sulphide through you?

U. T. M.

(First, it is rarely that cabbages grow well in the lowlands in summer, the weather has been extra hot and humid of late, and your place is hardly 1,000ft. elevation. Second, I think your seed had been kept too long, and although it germinated well, had not sufficient utility in the plant to make robust growth. Third, there are well defined seasons for planting here, and cabbage seed as well as corn, require to be sown at the precise time to get best results. You know how poor the results are for corn planted end of April compared with the beginning for instance, and how shabbily May-sown corn would look compared to March. Try white-lime sprinkled round the plants, and if you have not that, use wood-ashes. We are chary of advising the free use of poison like Paris Green, but if you are careful to prevent domestic animals getting at your garden, one teaspoonful to a quart of cornmeal could be sprinkled round your cabbages, which would destroy your slugs that eat them. As the cabbages and turnips are young you could spray (or failing a sprayer, splash it on with your hand) a gallon of water, in which has been dissolved a dessert-spoonful of Paris Green and a quart of wood-ashes. But the ordinary Kerosene Emulsion for orange trees is safe to use as a spray or wash than Paris Green, although hardly so effective. Carbon bi-sulphide is of no use for the purpose. Try the new article "Vaporite," sample of which is sent. We have other letters about "turnip fly," which the above will answer.)—Ed.

Oracabessa, 23rd June, 1906.

SIR,—I have just gone into the dairy business, and should be very much obliged if you could give me an idea of the daily rations for a dairy cow, that is, how much grass, milk-meal, or bran, etc., etc, and any other hints, I shall be most thankful for. Can you give me the address of a few good English dairy papers?—A.L.

(Without an idea first of the style of the cows you have, it would be impossible to give a ration. The ration would go by the weight of the cow and its ordinary milk yield. Cows of beef type require quite a different ration from cows of the milking type, but I send you a Journal containing some information on the subject, but most of these rations are not practicable here, because cowpeas are not grown in quantity to be cheap enough to use. For an average Jamaica cow, giving four quarts of milk over-night, and suckling its calf during the day, you would give as much Guinea or Para grass—the latter by far the best, as it would eat up clean, one quart wheat bran and two quarts of middlings, but no imported cornmeal or cotton seed meal; they are too fattening and heating for cows with a tendency to make flesh as yours probably have, being native cows. If you could get native corn cheap enough you could grind it fine, and substitute that for middlings, half the time with advantage. Write Messrs. J. H. Levy & Co., Brown's Town, who have some by-products of their corn-meval factory which could be used with advantage. Get "Farm Life"—illustrated, "Farm, Field and Fireside," both London, and the New York Tribune "Farmer," as per specimens sent.)—Ed.

Spaldings P.O., 29th June, 1906.

SIR,—Knowing that you are interested in the welfare of the island generally, I venture to write to you, asking if you would kindly tell me where I could get a ewe to buy, from a good milking breed, or how I could improve the quality and quantity of milk from an ordinary ewe goat. My best ewe goat can only give one pint of milk each morning, and if we could get one quart from each goat, we would be able to supply our own home with butter, if we had three or four such ewes; for even the poorest ones amongst us could keep that number of goats. They are easier kept than cows, and if one of us housewives up here would start making butter, many others would soon follow, and what a help it would be in the homes.

E. K. N.

(This letter was addressed to Col. Pincock and by him referred to us.)

(Good milking goats are very scarce in Jamaica. They occasionally appear at Shows—for instance, we remember at one Port Royal Mountain Show, a milch goat that gave two quarts and a pint at one milking, after being put up for twelve hours apart from her kid, and at the recent Show at Port Maria there was a good goat, which had been in milk for over a year which gave two quarts, but these are exceptions, and unless they are bred to rams from good milking nannies, their own kids do not turn out better than the ordinary run of goats. To buy such a nanny would cost a good deal, indeed their owners would hardly part with them. They are only chances; we have no special milking breed, and the instances given are only cases of reversion to some good milking ancestry which may have been brought into the island at some time. There is a much larger demand for good milch goats than there is supply—in fact, there is practically no supply, so the chance of anyone buying a good milker is very small. You should only keep your eyes open as you go about, and see if you can pick up one with as large an udder as possible, and then if you could buy such a goat and feed it well, milking it regularly and not letting it breed quickly, you would probably improve it very much. The goats in Jamaica are run down and degenerate, because they have not been taken care of, being allowed to breed too early being the greatest fault. We are sorry that we cannot give you any more help. This Society is encouraging the importation of milch goats by offering premiums on them, and some will be imported, so that in a few years there should be a great improvement.)—Ed.

Managua, Nicaragua, 15th June, 1906.

SIR,—Many thanks for remittance of Journals. I am charmed to have now set complete without break. Do not know how my account stands, and would beg to give me some notice, if not otherwise in postal card, so to provide in time for remittance. Your Journal is doing a good deal of good on my plantations, and in my experimental gardens in the hills.

H. E. Low.

Ramble P.O., 2nd July, 1906.

SIR,—I have been asked by a member of a large firm in England if I can obtain for him any information about molasses.

I shall be very grateful if you can give me an idea of the quantity available, and also present price.

Anything you can do for me in this matter will be much appreciated.

By quantity and price, I allude to Jamaica supplies only.

E. V.

On referring first the matter to Mr. Allen, acting Island Chemist, as to the price of molasses here from rum-making, he replied:—

Government Laboratory, 12th July, 1906.

"It is difficult to put a value on Jamaica molasses for rum-making, as it depends on the price got for the rum, and also to some extent on the amount of rum obtained from the molasses. Both of these factors vary between wide limits in this island.

"Making a most conservative estimate, molasses per gallon is worth at the lowest 9d. on the island. This is, taking rum at 1s. 6d. per gallon, molasses containing 60 per cent of sugars, and allowing 16lb. of sugar to every gallon of rum

The estimate of 9d. per gallon is made on the basis of the lowest price for rum, the poorest quality of molasses and the most inefficient distillation.

"I should say the average value of molasses is not less than a shilling a gallon. Mr. Cousins pays for molasses at the rate of 2s. for 14lbs. of sugar. This is at the rate of 1s. 2d. per gallon, but this is more than it is worth to the estate."

(As the price of Barbados molasses for export is only 12 to 20 cents—6d. to 10d.,—it will be seen that our molasses are worth more to us here than we could get abroad.)—Ed.

Buff Bay, 23rd June, 1906.

SIR,—I am purposing to import some pigs of a good strain for breeding purposes, and have enclosed copy of letter received, for your counsel and advice.

I intend importing one boar and two sows, guaranteed to be in pig.

What do you consider to be the best breed for Jamaica?

Do you advise all one strain or a cross?

Can you suggest any better or more reliable market than one mentioned in copy of letter enclosed?

I shall be glad if you can give me advice on these matters, as there is doubtless a good market here for pigs, and I would also like to support Col. Pinnock in his new venture.

(We import Poland China Pigs from the Department of Agriculture, Nova Scotia, Berkshires, either from there or England, Essex from Virginia. The first named would suit your district and purposes, an unrelated boar and sow, the latter to be in pig by another boar, unrelated to either would be best for you.)—Ed.

St. Andrew, 22nd June, 1906.

SIR,—Can you inform me as to whether any Nitro-culture can be obtained in Jamaica, and if not can you give me the address of any firm manufacturing it in America.

Is a special culture required for peas and another for beans? I believe alfalfa requires a culture different to that applied to the other legumes. Is lime necessary? and if not already present, how much should be applied per acre. Supposing a poor soil were sown in cow-peas innoculated with culture, and the crop (vine) ploughed in, do you consider that (with the addition of wood-ashes) this soil could give good results, say with Irish potatoes and English vegetables? The soil is red, very similar to that in St. Ann and deficient, I imagine in humus, nitrogen and phosphates. I am unable to obtain animal manure, and wish to plant before the peas will be ready (in September.) What manure would you recommend.

I intend experimenting with potatoes and English vegetables, with a view to shipping them to the London and New York winter markets. Would it be advisable to sow at the beginning of September, or would the seed be liable to be washed out. I suppose another sowing at the middle of November would be safe. As regards the rains. Do you consider that there is a probability of success with this cultivation, without irrigation, in the Port Royal Mountains? Where can I obtain cowpeas, quick increase for preference? What other pea would you advise for green manure, the crop to be used for chicken food?

How soon will cowpeas bear from the time of planting?

Do you know of any one who has an incubator for sale?

I shall be much obliged if you can give me some information on above points.

A. E. P.

(1.—Nitro-culture can be obtained through any reputable seedsman in the United States, P. Henderson & Co., 35 and 37, Cortlandt St., New York, for instance. 2.—A special culture is required for each class of legume, but for cow-peas or any beans and peas, you would not require any culture here, as these are so commonly grown, you could easily get soil infected with their particular bacteria, so that merely soaking your seed in water in which a little of the soil peas and beans have been successfully grown in lately, is stirred, would be sufficient. For alfalfa, we could supply you with infected soil as we have had a patch growing for nearly three years now. 3.—As you cannot get animal manure here easily and cheaply, by applying a good dressing—five to six cwt. per acre, of fresh wood-ashes, cultivating and growing cowpeas, you

could by turning them in, thus dispense with the manure. The wood-ashes, too, containing lime, would sweeten the soil, and for vegetables, which require such quick growth, another dressing of wood-ashes, after ploughing in the green stuff, would surely repay you in the subsequent growth of the crops planted, and also neutralise the acidity apt to be engendered in a warm climate by turning in a quantity of juicy stuff. 4.—Sow seed from middle of September to end, in boxes, or beds protected by an arbour of grass or boughs. You would then plant out in the garden or field immediately the October rains were over, your land all being made ready before, say, during first fortnight of November. 5.—In the district named, no irrigation would be needed four years out of six; February is usually a dry month, and there are occasionally droughts starting earlier. There is always risk of unfavourable seasons everywhere. 6.—Cowpeas can be obtained through us or can be imported from the New York seedsmen named above. Cowpeas take 9 to 12 weeks to mature, varying according to soil, location and seasons. 7.—An advertisement for an Incubator, would, we are sure, get one here.)—Ed,

Montego Bay, 21st June, 1906.

SIR,—Would you say whether eighteen months would be too early an age to send a heifer to be served? An ordinary Jamaica heifer, say a small settler's animal.

I ask because I am under the impression that I have seen it somewhere, that for milk the heifer should be sent to the bull at eighteen months, and for beef at two years.

Some owners of stock contend that the heifer may be sent when she is two years old, while others are of the opinion that three years is the proper age—before then they say development will be arrested.

In the Journal for June, in an article on Dairy Shorthorns, the cow at four years has dropped her third calf. This points that she must have been sent to the bull at about 18 or 21 months old.

I would like to be informed if given fair pasturage, a well-nourished, a well-developed animal may be put out at 18 months, and what advantage will that cow have as a milker over one sent at 2½ or 3 years, and, why she will possess any advantage,

H. G. M.

(It depends upon the growth of the heifer and the purpose it is meant for. Calves in northern countries are fed artificially, and at a year are generally larger than our grass-fed heifers at two years. For beef stock, animals are wanted to be large and as like breeds like, so heifers ought to be full grown and mature, say two-and-a-half years to three when bred simply for beef stock. For the dairy, a heifer, such as you mention, settlers' stock and only grass-fed, could be bred at two years. It is quite common to put heifers to the bull at fifteen and eighteen months in dairy countries, by reason of their high feeding in meal and grain, and hay besides grass, they are then fully equal to ours, or larger, indeed, at two years. Breeding young in dairy stock of course saves time, milk is got early, money made from the animal, and as high feeding is continued, she milks well and still develops, so that from her second and third calf on to ten years she is in her prime. Time is not of such value here as in crowded industrial countries; time is apparently cheaper than labour or the cost of food, and therefore calves are allowed to grow more slowly, and stock to fatten more slowly than where time is considered worth a great deal more than here.)—Ed.

SHOWS TO BE HELD.

The following Shows are arranged :—

Santa Cruz, 9th November.

Manchester,—Kendal, 28th November.

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No. 9

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society, was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 16th August, 1906, at 11.30 a.m. Present :—Hon. Dr. Pringle, Vice-President, presiding ; Hons. L. J. Bertram and H. T. Ronaldson, Messrs. D. Campbell, C. A. T. Fursdon, R. H. Hotchkin, E. W. Muirhead, R. A. Walcott, and the Secretary, John Barclay.

Minutes. The minutes of the previous meeting having been published in the current Journal, were taken as read and confirmed.

Instructors. The Secretary submitted the report of the Conference between the Board of Agriculture and the Instructors' Committee of the Society as follows :—

I beg to report that the Conference between the Board of Agriculture and the members of the Instructors' Committee of the Agricultural Society, was held at Headquarter House, yesterday, at 3 15 p.m. Present :—Hon. T. L. Roxburgh, the Superintending Inspector of Schools, the Acting Director of Public Gardens, the Acting Government Chemist, His Grace the Archbishop, Messrs. C. A. T. Fursdon, J. W. Middleton, and G. D. Murray, of the Board of Agriculture ; and the Hons. Dr. Pringle and L. J. Bertram, Messrs. D. Campbell, E. W. Muirhead, J. R. Williams, and J. Shore, of the Agricultural Society. Mr. Fursdon also represents the Agricultural Society on the Board of Agriculture, and the Secretary represents both bodies. The Hon. Dr. Pringle was unanimously voted to the chair.

All the papers on the matter containing suggestions, proposals and correspondence on the subject, had been previously circulated.

After considerable discussion, when the whole matter was gone into in detail, it was agreed to recommend that the following districts should be formed as most suitable for economy in travelling arrangements, and for the convenience of the work, but subject to revision in detail by the Boards controlling the Instructors in the districts :—

- 1.—St. Catherine, St. Mary and Portland.
- 2.—St. Andrew and St. Thomas.
- 3.—St. Elizabeth, Manchester and Lower Clarendon.
- 4.—St. Ann, Trelawny, Eastern St. James and North Clarendon.
- 5.—Hanover, Westmoreland, and Western St. James.

It was suggested that the following officers be appointed for the districts :—

For No. 1 district, Mr. Oradwick.

For No. 2 district, Mr. Briscoe, both of the Board of Agriculture.

For No. 3 district, Mr. Palache at a remuneration of £250 a year for salary and travelling expenses if he devotes his whole time ; or £200 a year for 156 days per annum or 13 days a month.

No. 4 district, Mr. Arnett at a remuneration of £300 a year to cover salary and travelling expenses, for the whole of his time.

For No. 5 district it was recommended that an Instructor be advertised for. This district has had the benefit of Mr. Oradwick's services for the last 3½ years, and it was thought as his services were so much in demand, the important cocoa parishes, St. Catherine, St. Mary and Portland, should receive his attention, and he would also be available for special work as before, such as taking the Teachers' Course at Hope in January, judging the Prize Holdings, enquiring into special diseases of plants, etc.

The following resolution was unanimously agreed to : "That the Agricultural Instructors in future be placed under a Joint Committee of the two Boards."

JOHN PRINGLE, Chairman of Meeting.

The report was unanimously adopted, and the Secretary directed to forward to His Excellency the Governor, with some further recommendations suggested, and stating that if the recommendations were approved, the Board were anxious they might be given effect to as soon as possible, say from the 1st September.

Hurricane Insurance. The Secretary submitted the opinions of the members of the special committee on Hurricane Insurance, on the question of rates, made by Messrs. Head & Co., Insurance Brokers, London :—

Mr. John Cameron wrote :—"Not having to do with such crops as those under consideration, I have not thought the matter out. As the crop that really requires to be insured is not included, I don't see that much business can be done in Jamaica."

Mr. Joseph Shore wrote :—"I do not know why I was put on this committee, as I do not believe in hurricane insurance at all."

Mr. Dugald Campbell wrote :—"It appears to me that the rates quoted both for buildings and cultivations (crops) are prohibitive. The rates for buildings in the local company as well as in other companies operating in the island, are much less than those quoted by Mr. Head, and bananas being excluded from the insurable crops, I do not think the scheme will be accepted in the island."

Hon. Dr. Pringle wrote :—"I do not think the scheme would be any use here. Buildings can be insured cheaper here. Most cocoa plantations have bananas through them, and the premium on coconuts is far too high."

The Chairman thought it would be better for them now to wait developments in connection with this matter. He was of opinion that gradually the rates would be adjusted to suit requirements.

The Board decided to inform the Government and Mr. Head to the effect stated, that it did not appear the scheme was likely to be generally approved in Jamaica, or that much business would result meantime, but the results in the other parts of the West Indies where it appeared to be more approved, would be awaited with interest.

Regulation of Meat Inspection. The Secretary stated that as instructed at a previous meeting, he had written to the Board of Agriculture, London, and to the U.S.A. Department of Agriculture, asking for the regulations in effect there

relative to the condemnation of cattle slaughtered, and found to be suffering from disease, and he had a letter from the latter, advising the despatch of a copy of the regulations governing meat inspection. He was directed to circulate this among the Live Stock Committee.

Visit of Mr. Stockman. The Secretary submitted letter from Sir man, M.R.C.V.S. Daniel Morris, to the Governor, referred to that Board as follows :—

Mr. S. Stockman, M.R.C.V.S., the chief Veterinary Officer attached to the Board of Agriculture and Fisheries, is likely to arrive in Jamaica about August 15th next. He is coming out purely on a holiday, but he informs me that he would be glad to meet some of the leading penkeepers and discuss with them any diseases affecting horses and cattle in the island. He can only remain about four or five days altogether. I have explained that this will not enable him to travel about and see much of Jamaica.

As the opportunity is likely to afford the means of utilizing Mr Stockman's wide knowledge and experience in case veterinary matters connected with the island are referred by the Colonial Office to the Board of Agriculture and Fisheries, it would be well if some of the principal penkeepers were informed of the probable date of Mr. Stockman's visit, and where he could be found during his stay. Possibly, Mr. Barclay would be a good man to take up the matter. I understand that the Chairman of the Board of Agriculture is on leave, also Mr. Fawcett, and Mr. Cousins.

The Secretary said so far as he was aware, Mr. Stockman had not yet arrived in the island. He had communicated with some of the principal penkeepers in connection with the matter, as requested.

Letters. The following letters from the Colonial Secretary's Office were submitted :—

1.—*Re* Duty of Breeding Stock.

No. 6662-7515.

2nd August, 1906.

I am directed to acknowledge the receipt of your letter, No. 1238, dated the 29th ult., forwarding a resolution passed by the Board of Management of the Jamaica Agricultural Society, asking the Government to consider the removal of the existing import duty on stock imported *bona fide* for breeding purposes, particularly at this time when the Society is offering premiums for the importation of select breeding stock.

2.—*Re* Proposed Butchers' Licence.

No. 6697-7517.

3rd August, 1906.

In reply to your letter dated the 20th ult., submitting a resolution of the Board of Management of the Jamaica Agricultural Society, asking the Government to consider the question of introducing regulations for the licensing and registering of retail butchers, I am directed to ask you to be so good as to state what are the reasons which induced the Board of Management to support this resolution.

The Board instructed the Secretary to send to the Government the full report of the Live Stock Committee of the Society as printed in full in the Journal.

3.—*Re* International Agricultural Institute.

Transmitting a copy of a circular despatch from the Secretary of State for the Colonies, with a copy of a Parliamentary paper relative to the establishment of an International Agricultural Institute, stating that the Governor would be glad if the Board of Management of the Jamaica Agricultural Society would be so good, after its perusal, as to report what good, if any, would, in their opinion, result from this colony adhering to the Institute.

Mr. Walcott suggested that the parliamentary paper be referred to a Committee, consisting of Messrs. Bertram and Campbell, who would read it, and make a report to the Board at their next meeting.

Mr. Bertram said he had already read the report. The proposal was one to establish a new international department to consider questions arising in the world of agriculture, and in order to maintain the department, it was proposed that there should be a subvention from each State which was interested in the data to be made at the head station. There was to be a head council, consisting of representatives from the States, such representatives to be determined by the amount of such subvention.

The suggestion of Mr. Walcott was adopted by the Board.

4.—*Re* Medals for Cotton Cultivation.

No. 6985-8188.

14th August, 1906.

In continuation of the letter from the Colonial Secretary's Office, relative to the suggestions of the Jamaica Agricultural Society, for the award of gold and silver medals offered by Sir Alfred Jones, for cotton cultivation in Jamaica, he was directed to enclose for the information of the Society, a copy of a letter from the Imperial Committee of Agriculture for the West Indies, on the subject.

The letter from Sir Daniel Morris was dated Downing Street, 20th July, and acknowledged the receipt of the Colonial Secretary's letter of May 30th last, in which he enclosed by the direction of the Governor, copy of a memorandum drawn up by the Staple and Minor Products Committee of the Jamaica Agricultural Society, containing the conditions under which the award of the gold and silver medals offered by Sir Alfred Jones, may be made to cotton growers in Jamaica, and said in reply :—

I would mention that I have had an opportunity of discussing the conditions laid down in the memorandum referred to, with Sir Alfred Jones, and he hopes that they will ensure a fair competition and encourage cotton growers to put forth their best efforts to obtain good results.

Exhibition of Colonial Fruit.

The Secretary submitted letter from the Secretary West India Committee, regarding the next Exhibition of Colonial Fruit in London, on December 4th and 5th. As the letter had been published in the newspapers, it was taken as read and directed to be published in the Journal.

West India Committee, 15, Seething Lane,

London, E.C., 18th July, 1906.

SIR,—When the exhibitions of Colonial fruit were first inaugurated by the Royal Horticultural Society in 1904, the principal Colonies represented were the West Indies. Since then, however, interest has fallen off to such an extent that at the last exhibition, held on June 5th and 6th last, the West Indies sent no exhibits direct, and were only represented by firms at home, though such distant Colonies as Australia and South Africa made very representative displays, the former of citrus fruits, which are likely to compete keenly with similar fruits from the West Indies. I think that you will agree with me that this lack of interest is a pity, more especially as these exhibitions are well attended and "noticed" by the Press.

Everything is made as easy as possible for exhibitors; space is free of charge, and exhibits are brought over free through the kindness of the Royal Mail Steam Packet Company. In the circumstances, I venture to ask for your kind assistance towards securing the more adequate representation of the West Indies in the future.

The next exhibition of the series is to be held on December 4th and 5th

next, and it has occurred to me that this would be a good opportunity for following the example of Cape Colony, whose Government hired the whole of the hall for the night preceding the exhibition in March last, and gave a reception to which the Press and those interested in fruit were invited, thus securing a very excellent advertisement for her produce.

I believe so implicitly in these exhibitions, that I have already engaged the Horticultural Hall, with cloak-room and storage accommodation, for the purpose of an evening reception, at a cost of £7 17s. 6d., including heat and light, feeling that with your valuable co-operation it should be possible to get together a collection of fruit sufficiently representative in quantity and quality to make it worth while doing so. What I have done may at first seem premature, but as the matter was under consideration by another Colony, it was desirable and, indeed, necessary to take immediate action.

With regard to expenses, it would be a case of cutting our coat according to the cloth. The expenses would be for (i.) the hire of the hall; (ii.) carriage of the fruit from port of arrival; (iii.) assistance for setting out the fruit on tables provided free of charge; (iv.) the reception. The latter would, of course, be controlled by the number of people invited, but I think myself that at least 1,000 invitations should be sent out. At any rate, if the Colonies could provide among them the sum of from £80 to £90, we should not have to ask them for more, but should, I estimate, be able to show a balance on the right side.

As regards my own position in the matter, I need hardly say that I shall be only too glad to assist in making the arrangements if I can secure your valued co-operation. Trusting that you will give this matter your consideration, and favour me with a reply at your early convenience, as time is of object.

I am, yours obediently, ALGERNON E. ASPINALL, Sec.

Secretary's Report on Visits.

The Secretary submitted a report on his visits in Trelawny and St. Ann and Clarendon, in July and August to date, including the Shows at Brown's Town and Mears Pen, and stated that it would be published in the newspapers. The report was taken as read, but the matter on the Shows was directed to be published.

On the 1st of August I attended the Agricultural Show at Brown's Town. There was a very good attendance, larger than last year, although the gate money was less, as this year the entrance fee was sixpence as against a shilling last year. The entries for horses and cattle were much larger than last year also, but what I consider the most important, the Agricultural Products, were very much less. This can be accounted for in several ways—first, last year there were so many products sent that the arrangements made could not cope with them, many were not even opened out or taken in, and the staging and effective judging of exhibits were not thus thoroughly carried through, so that a great many competitors were so disappointed that they did not care to repeat their visit to the Show; second, free cartage was provided for some far away districts like Cave Valley the year before, which was not repeated this time; third, the first of August does not apparently suit Brown's Town district as well as it seems to do Thicketts, and being a general holiday, I found the people in the Dry Harbour Mountains more bent on picnics and cricket matches than troubling about a Show. However, the agricultural products that appeared made a very fair show, but the date of course was entirely out of season for coffee, and was a little too early for pimento, and this is not a good cocoa district. There was nothing of a noteworthy character in this section other than the competition for the Products of a School Garden, both first and second prize lots being varied, and of quality, and altogether most encouraging. I visited both School Gardens later and was exceedingly well pleased with their neatness and effectiveness.

In the stock, the Small Settlers made an excellent appearance in all classes, horses, mules and cows, and here the St. Ann people will take a lot of beating.

There were so many exhibits in certain classes of Products, and so few or none in others, not of much account anyhow, that I might suggest to the Brown's Town Committee, consideration of pruning out some classes, and the offering of three prizes in the classes favoured or others wanted to be fostered.

JNO. BARCLAY, Sec.

On the 9th August I attended a Show in North-Clarendon, got up by the Rio Minho Branch Society, and held at Mears Pen, a very suitable spot. As Mr. Hirst had resigned his duties as Agricultural Instructor from the 31st July to enter upon another appointment, but about which he stipulated that he should not begin his duties until after this Show in which he was so much interested, Mr. Oradwick, Mr. Arnett and myself went to assist him, and give him a good send off. Mr. Heming, Assistant Secretary, Brown's Town Show, and Mr. Byles, of Brown's Town Show, also assisted on the ground and with the judging. On the whole, it was an excellent little Show, and should leave a good impression in the district. Unfortunately it rained heavily the day before, and part of the night, which affected both the gate and the exhibits. Still there was a good display of exhibits, and a fairly good turn out of people. The open classes for subscribers only, had no money prizes, the winners being awarded certificates. The small settlers classes for stock were well patronized, the horses and mules being promising material, and cows rather above the ordinary, although neither were got up for Show in the way the small settlers stock was in St. Ann. People in Clarendon are not so accustomed to Shows as they are in St. Ann, and require some training in this direction. The goats were only middling and not brought prepared for Show either. There were no rabbits, and the poultry was exceedingly poor, there being only two exhibits. There is tremendous room for improvement in the poultry of Clarendon. The bee section did better with a very good show of wax. The fruit classes were not worth mentioning, with no particular competition and not much quality. The exhibits of bananas were also disappointing, through lack of competition, although this is a magnificent district for bananas. The vegetable section was also poor, but the yams were in fair competition, though nothing like what the district should turn out. Sugar the same. The Prizes List had a class for Seed Corn, six cobs suitable for seed,—an item that ought to be encouraged, but this particular class did not seem to be much understood. The show of beans and peas was only fair. The best classes were the coffee and cocoa, especially the latter, where a great improvement had taken place in the exhibits since the last show held in the neighbourhood. The coffee made a fair show, although it was not the season, while the cocoa season had just finished. There were also some good exhibits of Kola Nuts. Tobacco was in good competition, and of very good quality. The Meals and Starches were very fair, with good competition. The Preserves were also above the average. There was fair competition in the dairy products; and the hens in Clarendon evidently seem to lay. In St. Mary and St. Ann they apparently do not. The trade exhibits were promising, and there was stiff competition in the class for the best map of the parish of Clarendon, and I think that Clarendon appeared in a more favourable aspect, so far as gorgeousness of colour is concerned, than anybody ever attempted to paint it before.

The St. Ann Products Company made a display of their Cornmeal and other products.

This Show was so carefully financed, that despite an attendance counted at a third less than what would have been had the day and night before remained dry, there is a very substantial credit balance, enough for even a big Show to envy.

JNO. BRACLAY, Sec.

Instructors' Reports and Resignation of Mr. Hirst.

The Secretary submitted the reports of the Instructors for the month which had already been published in the newspapers, and also a letter from Mr. Hirst, confirming his resignation as from July 31st. It was resolved that the Secretary should write Mr. Hirst expressing regret at his resignation.

New Members.

The following new members were duly elected :—

Messrs. Chas. J. Eder, La Manuelita, Palmira, Cauca, Republic of Columbia;
Director of Agricultural Research, Lusu, India.

The meeting adjourned till Thursday, 20th Sept., at 11.30 a.m.

PINE-APPLE CULTIVATION IN JAMAICA.

THE pine-apple is probably the finest fruit in the world, and to see a thousand of them just cut from the field adorned with a thousand crowns, is a sight not to be forgotten. Touching the early history of this fruit, I quote from the *Encyclopedia Britannica* :—"Evelyn, in his *Diaria*, mentions tasting a pine-apple from Barbados at the table of Charles II., and this is we believe the first mention of the fruit in English literature."

The banana and the orange—the two great commercial fruits of Jamaica—can be bought in the streets of London at 1s. per dozen, but a good pine-apple cannot be bought for 1s. One banana plant yields some 200 bananas in a year; an orange tree many hundred oranges; a pine-apple plant, only one fruit.

Of course, many more pine-apples are planted per acre than the other two fruits, but still a great numerical disparity remains. It is well known that the Jamaica fruit trade in bananas and oranges has been in recent years advancing with leaps and bounds, though much remains to be done to accelerate orange production. Since the inauguration of the Jamaica fruit contract, I have been engaged as fruit-growing adviser to Messrs. Elder, Dempster & Co., and this firm has been most solicitous to encourage the pine-apple industry on commercial lines in the island. At their request, I visited Florida in 1901, for the purpose of acquiring information relative to the methods of culture so successfully pursued there. My report was published in pamphlet form by the Board of Agriculture. This report embraced other important cultures established in Florida, one of which, consequent on my investigations, has been taken up in Jamaica on a commercial scale, *i.e.*, cassava for starch-production.

On my return from Florida, I started pine-apple cultivation at Maryfield, near King's House, on about three acres. The cultivation was from a Jamaica point of view quite successful, about 66 per cent. of the plants having borne fruit. Here I had also hundreds of pine-apples on trial on the "shed" system of culture, which has been so eminently successful in Florida. The firm transferred the Maryfield cultivation to the United Fruit Company, and later it was abandoned. Subsequently, I was instructed by Sir Alfred Jones to renew experiments with the culture. Accordingly, three acres were planted on the Constant Spring Hotel lands in the beginning of last year—details of which I give later on.

Culture in Florida.—If the soils of Florida were anything like the soils of Jamaica, it is safe to say that pine-apples would not be cultivated there at all. The soil in which they are planted consists of from 96 to 98 per cent. of silica. The growers furnish all the food by fertilizers which bring forth luxuriant crops. This kind of soil is so congenial, that the plant from time to time endures great vicissitudes of temperature, darkness under cover, and smoke

from hundreds of fires to protect them from frost. This soil is a mystery, chemically and physically. "Just how it is that the pine-apple can thrive in such soil that seems to be exceedingly deficient in all the necessary qualifications of good land, has not been explained. It will probably be necessary to institute careful physiological experiments with the plant itself before the matter shall be thoroughly understood." I was struck with one remarkable feature of this soil. On examining a large pine-apple field, that had been some months before uprooted in order to prepare the land for replanting, I saw many hundreds of small rejected suckers that had been cast away over the land, actually bearing fruit! In other words, these suckers yielding fruit had no connection with the soil, other than lying on the surface. I was puzzled. But on reflection, I arrived at the conclusion, that this phenomenal productiveness was due to the great depth of the bed of sand, probably 50 feet, which issued moisture from its huge mass, on the principle of capillary attraction. The field under consideration was situated in the pine-apple region, relative to which I quote from my report :—

"Jensen on the Indian River is situated about 27° latitude on the East coast. Here are great pine-apple fields, many miles of solid cultivation.

"The pioneer pine-apple cultivator here, indeed the pioneer cultivator on the Peninsula of Florida, Captain Richards, gave me an historical account of his initial experiments; how he 18 years ago (at that time the district was a wilderness) brought the first schooner load, containing 40,000 suckers from the Key Islands, how they failed, except a limited number, as he knew not how to treat them in the changed conditions of soil. He returned to the Keys for another schooner load. He persevered amidst the greatest difficulties. Mosquitoes were awful, heads and faces had to be shielded by a netted contrivance. His first shipment to New York attracted great attention. A son is now a large grower, shipping from 8,000 to 10,000 crates per year (average per crate 30).

"This is the greatest pine-apple region in the world; about 200,000 crates, containing six million fruits, are shipped to the northern cities annually, and plantations are constantly being extended. Practically, all the plants cultivated, are the Red Spanish variety. This variety is generally admitted to be inferior in quality to several others, but growers claim that "it is the hardiest, easiest to cultivate and best suited to varying conditions." The Jamaica Ripley is well known amongst growers, and is considered the most luscious of fruits, but though repeatedly tried, it has not been successfully cultivated. The Smooth Cayenne is cultivated in the open to a small extent, but not quite satisfactorily.

"For a long period of years frost was unknown here, but the calamitous freeze of 1894-1895, destroyed all the plantations and ruined most of the planters. However, most of the growers were determined to resist all obstacles,—the class of men that make a nation prosperous. They obtained from the Keys and the Bahamas

fresh supplies of suckers and made new plantations. Another freeze two years ago, much less severe than the previous one, committed considerable destruction ; suckers sprang up from the ground this time. Some pineries suffered more than others. From year to year the growers live in terror of the return of this disaster, though they look forward to comparative exemption from frost upon their devoted culture.

" The average amount netted per acre is about \$40. ' We have had from one acre of pines, containing 10,000 plants, 250 crates, averaging 30 to the crate, or 7,500 pine-apples, netting us over transportation, commission, etc., \$2 per crate, or \$500 for the acre.' "

With regard to this cultivation in Jamaica, I stated in my report on Florida pine-apples (1901) that the number of fruits exported from this island was only about 65,000 a year, and I estimated that about 100 acres were under cultivation. Further, I stated that there was hardly any cultivator of an acre or two who had not been greatly disappointed.

A few years ago, strenuous efforts were made to cultivate this fruit on a considerable scale. The late Mr. Eugene Smith, previously a Florida cultivator, entered into this project with enthusiasm. His first experiments were conducted in St. Thomas-in-the-Vale, where the soil and excessive humidity of the district were extremely unfavourable to the requirements of the plant. After several years of unsuccessful cultivation, he abandoned experiments in that district. He removed, and renewed experiments in the more propitious soil and climate of the Liguanea plain. Here, too, the result of his cultivation was unsatisfactory. Still more extensive attempts were made by the United Fruit Company in many localities, with very unsatisfactory results. The tenacious soil on the sites selected was too retentive of moisture for pines. In both of the above instances, the variety "Smooth Cayenne" was chiefly grown, and this does not thrive well in Jamaica. Many other parties embarked upon this culture on a smaller scale, an acre or two, in various parts of the island. Thus, too, the native varieties were cultivated with unfortunate results, and altogether, I fear many thousands of pounds were lost.

In another West Indian island, Antigua, great difficulties have attended this cultivation. I extract the following from one of the publications of the Imperial Department of Agriculture for the West Indies :—" For some years, a considerable trade has been carried on at Antigua in the shipment of pine-apples. Thus, in the year 1902-3, 4,754 barrels and 47 crates, of the value of £2,270, were exported. The trade has not been a remunerative one, and it is in danger of extinction."

It is a remarkable fact, probably unprecedented in the history of cultivated plants, that the great fruit-growing colony of Jamaica is incapable of competing in the cultivation of pine-apples, (a fruit indigenous to the island,) with countries whose only recommenda-

tion for this culture, is sterility of soil. Last year, we exported 41,492, as against some six millions shipped by Florida alone. Anyhow, in spite of the reverses referred to in this report, it is interesting to note that two or three fairly successful pineries of a few acres each, have been recently established on the Liguanea plain.

This plain, extending from the sea (and Kingston) to the ramification of hills on the back ground, about seven miles, ascends to an altitude of 700 feet. It is thickly studded with bush, and practically devoid of cultivated products, hardly one-hundredth part of the plain being cultivated. A zone across this plain embracing many thousands of acres, is peculiarly well adapted for growing cassava.

The mango tree abounds on this plain spontaneously—this fruit, more important than all the other fruits put together, for the peasantry, finds its most congenial home in a comparatively dry soil and climate, (including Kingston, more than 70,000 people live on this plain). Down near the sea this plain is strikingly arid. Here some acres of pines were planted a few years ago by a competent grower from Florida. The experiment completely failed, though it was irrigated. At distances from the sea, of 2, 3, and 4 miles, numerous plots of pines have been tried, and all succumbed. From 5 to 6 miles from the sea, as already indicated, there is a marked increase of humidity and rainfall. This is the zone in which the few pineries are being established. Thence to the base of the hills, the precipitation of rain is much more frequent and abundant.

The only returns of rainfall recorded near these pineries, is at the Constant Spring Water Works Reservoir, a mile and a quarter nearer the hills than the pineries and the hotel. The rainfall at the Water Works may be about 10 inches heavier than at the latter. I have been favoured with a copy of the rainfall returns for six years, and they are surprising,—surprising in quantity, as compared with the dry climatic surroundings of the locality. This comparatively dry climatic condition, is ascribable to the prevalence of the strong sea-breeze passing over the arid parts of the plain. Another factor is noteworthy, viz., the “dry season”—prolonged droughts—twice a year, are not indicated by the rainfall, which it would appear has been abnormal during the past six years.

The lowest annual rainfall in six years occurred in 1900—58.06 inches. The greatest in 1901, 89.05 inches. Average for the whole period, 70.04 inches. With four exceptions in the six years, rain fell in every month. Comparing the first six months of six years with the first six months of this year, (1906) the rainfall in the first six months of 1903 was 19.53 inches, in the first six months of 1906, 45.42 inches. The average rainfall for all Jamaica in 10 years is 76.15. The range is remarkable, namely, at the Palisadoes and Heathshire hills 80 inches, and at Moore Town in Portland, 240 inches.

The hills surrounding this plain, long ago denuded of forest, are too dry and impoverished of soil, except at one point, for

the cultural requirements of small settlers. These humble peasants establish their homes where tropical humidity abounds. On the other side of the hills to the left, where the land slopes to lower levels, the peasantry occupy the country. Hundreds of them grow groups of pines amongst their common field crops. They are not properly cultivated, and only a small proportion are fruitful. This fruit is immediately available from week to week for the Kingston market, aggregating many thousands annually. The price obtained is about a 3d. each.

At the end of 1904, on account of Messrs. Elder, Dempster and Company, three acres of the Constant Spring Hotel land on the Liguanea plain, six miles from Kingston, were cleared of bush, fenced, ploughed, and prepared for pine-apple cultivation under my supervision. Thirty thousand suckers were bought at an average of a little more than 30s. per thousand, and planted in December and January (1905). The suckers are simply unrooted off-shoots of the plant. They are remarkably tenacious of life, and resist droughts for months. During the first four or five months, some fine showers of rain were experienced, but not enough to stimulate the suckers to root freely. On May 20, 1905, I reported :—"During the past fortnight splendid rains have been experienced. This will have the desired effect of stimulating root production on the pines." Hence, absence of adequate rain, retarded growth until May and June. When well-rooted the plants take kindly to the dry season.

The common on which this pinery is established, was formerly a sugar-cane field (too dry now for growing canes without irrigation). Patches of the three acres turned out impoverished soil, aggregating nearly half an acre. Thus, at one point, the soil was too gravelly on the surface, at another, concrete debris had been scattered thereon. The plants on the dry patches responded to its dry character, they assumed a stunted and discoloured aspect during many months, for on the thin layer or gravelly soil, the moisture is evaporated in a few days. Anyhow, during the heavy rainy season recently, the stunted plants recuperated for a short time.

An "air-plant" this is called in Florida, owing to the fact that it flourishes on the barren sands, the disintegrated effects of which it may be stated, cannot be rivalled by any implement made by man. In Jamaica, it is cultivated on soils common to all our products—a loamy fertile soil. This soil is the origin and cause of our numerous failures. In other words, our soil retains an excess of humidity during many months—an excess antagonistic to the welfare of the plant, and at other times the soil is excessively dry, besides, this loamy soil is baked by the sun and rendered compact,—an impossible condition on the sands of Florida. These facts may throw some light on the unexplained influence before referred to, of the barren sands on this cultivation, an influence regarded as a mystery in Florida. It may be noted that the sands of Florida are not the only soils eminently adapted for pines. Thus, the decomposed coral rocks of the Bahamas, and in other countries volcanic debris, produce many million of pine-apples.

In Florida, Cuba, and the Bahamas, where about 20 millions of pine-apples are produced annually, the dominant variety cultivated is the Red Spanish. The variety Smooth Cayenne, on account of its size, appearance and beauty, however, is the most prized of all the commercial pines. This is cultivated on a large scale in Florida (it is the variety that comes to England at Christmas time from the Azores). Our famous variety, "Ripley," is not generally known. Great efforts were made some years ago by the Florida cultivators to establish this variety,—schooner loads of suckers were procured from Jamaica—but it could not be successfully cultivated there. In point of size, it is smaller, and on this account, not so attractive as the Smooth Cayenne. And *appearance* in a pine-apple, apart from its luscious quality, renders it commercially popular. The Ripley is the most luscious variety amongst all the varieties indigenous to Jamaica, and probably the most luscious pine-apple cultivated anywhere. It is the variety I have endeavoured to recommend to cultivators here. At the same time, it must be mentioned, that the cultivators on the other two pineries nearby, are devoting more and more attention to the Red Spanish. It is claimed to be a more robust variety and better carrier than the Ripley. The "Red Spanish," a great authority says, "is admitted by all to be inferior in quality to many others."

In the months of May, June and July, pine-apples are principally cropped here. My estimate of the crop at the Constant Spring Pinery from 30,000 plants, is 20,000 fruit. Instead of the crop being harvested in this pinery in the months indicated, the crop will be reaped throughout the remainder of the year. This is a contingency I cannot account for. The result will be most advantageous, for out of season the fruit is of higher value. Moreover, one of the objects for which the pinery was established, was to supply the hotels under the auspices of Messrs. Elder, Dempster & Co.

It will be understood from this report that, in my opinion, we are merely entering into a new phase of pine-apple culture in Jamaica, so that it is impossible, at present, to estimate with any degree of certainty, the prospective annual returns per acre. Furthermore, it will be observed, that I have confined my recommendation of this culture to a narrow zone on the Liguanea plain. The sloping land, affording ample drainage, with its gravelly sub-soil, in most parts, and moderately moist climate, are the conditions here conducive to more successful results than, perhaps, any other part of the island.

ROBERT THOMSON.

Half-way Tree P.O., 15th Aug., 1906.

NOTE.—Since writing the above report, I find that Mr. Geo. Munro, the well known fruit authority of Covent Garden, says, "That if Ripleys could be got to market in good condition, they would run the Cayennes out of the market.—R.T.

R U B B E R.

BEING aware of the boom in rubber, and having contemplated planting some in St. Thomas-ye-East, I thought it well to enquire elsewhere before spending the money ; and where Castilloa is indigenous it seemed the best place to make inquiries, so I send you my friend's reply to many questions put to him, and, I think the information will be of service to the community.

"I also note what you say about planting rubber. I was thinking about doing the same thing at one time, but I abandoned the idea. In addition to studying up what literature I could get hold of on the subject, I also made inquiries about whether estates already planted were successful and paying properties, which, after all, is the best criterion. The results did not appear very satisfactory.

"Near San Carlos in the Savannah, situated in the district of Aenagu de Oro, in the department of Bolivar, and near the Sim's River here in Colombia, there exists a rubber plantation of Castilloa. Elastica, belonging to American capitalists. They have some 300,000 trees, and the plantation is 15 years old. They began tapping in 1901, but it is reported to barely pay the expenses of the place. This too in the very district where Castilloa grows wild. It is the old native trees which have been practically killed off by constant tapping. Perhaps with Jamaica labour, which is fairly cheap, you may be able to make it pay. A good deal of money is made out of rubber trees where they are found in their native state, but, so far, I have not heard of its being a paying concern to plant rubber, excepting to the promoters of rubber plantation companies, and I doubt whether stockholders got much out of it.

"Castilloa can be planted easily enough, either from seeds or cuttings. We have a few trees here planted from seed. I have never heard of the Para, *Hevea Brasilensis*, doing well, except on the partly flooded lands that border the Amazon. I know a man who had been in that business on the Amazon.

"If you have not already done so, I would advise you to write to Kew Gardens for their reports on the various kinds of rubber, as their reports are more complete and give information about experiments made in various countries by the English colonies and other nationalities."

W. W. W.

There is a good deal of fact in the above, but the inferences are wrong. It is a fact that of the many American Companies got up to plant rubber in Central America, not a few were simply promoted by Stock Brokers for their own benefit, and have not been successful. But this does not at all indicate that the growing of rubber is not, and will not, be a profitable concern, even if only a few of such companies have so far proved paying concerns.

Besides, it is very often the case that pioneers in any undertaking do not make money—it is those who follow after them and benefit by their experience who succeed. There are many large rubber companies in Mexico that are already very successful, and there are many small and large plantations of Mexican gentlemen which have been established cheaply, and which give large returns now. It is also a mistaken idea that *Hevea* or Para rubber only grows on partly flooded land. As a matter of fact, if reference is made to the Journal for 1904, page 129, the true knowledge on the subject will be found. It is there stated that Mr. H. A. Wickhan, who procured the original *Hevea* or Para seed for the Government of India, declared that such seed was the product of a large number of trees in the forest covering the broad plateau dividing the Tapajos from the Madeira River, the soils being well drained, in wide, extending forest covered table-lands, stiff but not remarkably rich. So thorough is the drainage of these highlands, that no water is to be had in spite of the heavy rains. The rubber gatherers have to use water-bearing vines for their water supply. The water seems to run over or through the soil, from which we judge it must be of similar nature to our white limestone soils here. However, apart from that, there is now absolutely no doubt about the fact, that in the Strait Settlements and Ceylon, the cultivation of *Hevea* or Para Rubber, has been a great success. Some of the trees, not very old, 8 and 10 years, are giving returns that would have been thought fabulous a few years ago, and the prices prevailing just now would also have been thought fabulous a very few years ago. However, the present price need not be taken into account, in figuring out probable returns. These would be safer to be calculated on the basis of 2s. 6d., per lb. instead of 6s., or even 4s. There are failures in every enterprise, and every line of business. In the history of mining, no matter what metal, there have been tremendous swindles and failures, but that is not to say that there are not plenty of profitable enterprises in mining, whether gold, silver, or coal. In agriculture, there have been some failures in planting coffee, cocoa or bananas every where these have been tried, but of course there are also successes. In planting any product, great care has to be taken that the location is suitable for the product, that the rainfall, temperature and the type of soil will suit the plant to be grown. There are some places that one would say are exactly typical for growing rubber in Jamaica, and there are other places which one might say, from experience elsewhere, were not suitable, and yet on trial may turn out to be very productive. From the knowledge that was obtainable at the time the Ceylon planters began to plant Para Rubber, we think that nine out of ten experienced agriculturists elsewhere would not have advised that the conditions in Ceylon would have suited this rubber so well as results have now proved.—Ed.

The report on the London Rubber Share Market for 1905, says that the past year, though a leap year in the commercial sense,

has seen the market established in the shares of rubber producing companies, which starting in a very small way, have from very insignificant beginnings developed into a sound proposition with bright prospects for the future. During the year 1,400 packages from Ceylon and 1,000 from the Straits were dealt with by the London market, the best quality realising 6s. 9½d. per lb. Many rubber companies have been floated in Ceylon and the Straits, and the public have subscribed handsomely, often many times over the amount of the issue. For the best description of estates rubber, market prices have run from 4s. to 6s. 9d., there being a difference of 1s. per lb. in favour of "plantations," as compared with fine Para from Brazil.

PROTECTION AGAINST LIGHTNING.

THE "Florida Agriculturist" has extracted some information from other agricultural papers concerning buildings struck by lightning, from which we have condensed the following information :—" When a building has a proper lightning rod it is perfectly secure against lightning. The farmer in the United States is the principal loser from lightning. This is the reason. Lightning seldom strikes in a city because the multitude of wire, metal roofs, steel buildings, etc., are a safety valve on electrical conditions. In the country, there is nothing to equalize the electrical conditions of the air, and it accumulates until it comes to the earth with a crash, and so strikes the most conspicuous conductor available, a tree, a house, or a wire fence. Houses can be easily protected with lightning rods. These should go down to permanent moisture in the soil, and should be connected with tin valves, metal roofs and water pipes."

In Jamaica, we are comparatively free from damage by lightning, but every now and again in some few districts we hear of houses being struck. Lightning seems to favour a portion of St. Ann near Brown's Town, and parts of Hanover. It is not difficult to get lightning rods put on buildings, and it would be a good matter of precaution, and make one feel safe in a house where lightning is feared, to have an efficient lightning rod. As a rule, lightning will not strike a well rodded building, but sometimes when the clouds are very heavily charged and near the earth, the rod on the building may be struck, but never the building. The electrical bolt being a negative body suspended in the air passes through the easiest channel, the air is resistant, and wood is a non-conductor, but metal is a good conductor, and to some extent, attractive, so that a bolt of lightning striking the earth by way of a rodded building, will always be received without injury if the rod has been properly put up, whether of iron, steel or copper.

INDUSTRIAL ALCOHOL.

In June number, we had articles on Alcohol as a Motive Power, and on Industrial Alcohol, when we explained that this alcohol was an undrinkable article, and could not be used for any of the ordinary purposes where alcohol was in common use, and therefore should not be taxed as drinkable alcohol is. Since then, the United States has removed the internal revenue tax on denatured alcohol for industrial purposes, and so has followed the lead of Germany and France where industrial alcohol has been such an important article in the development of chemical industries, in the invention and extended use of many devices for heating, lighting and for furnishing power. While the field of usefulness of denatured grain alcohol is wide, the best results will probably be attained in its use as fuel for small power motor and for heat and light. In the United States now, probably there will be perfected and placed on the markets many appliances in these directions.

Few places in the world could make alcohol as cheaply as Jamaica could make it from sugar and starch, and in time we expect to see it used here for lighting and for motive power instead of kerosene and gasolene.

DRAINAGE.

(Continued from August Journal.)

To compare the efficiency and the cost of deep and shallow drains. The water will reach the shallow drain first. That is one point in favour of the shallow drain. But 48 hours after the rain, the deep drain will afford more ventilated space for air-movements, and root growth. That is a count in favour of the deep drain. In special cases, as in market gardening, where quick maturing of shallow-rooted crops is the object in view, it is evident that the shallow drain is preferable. But in general farm crops, and in orchards, the deeper drain is on the whole more efficient. Now as to cost; in the particular instance above, there are for a given area three drains 3 feet deep, or two drains $3\frac{1}{2}$ feet deep. Suppose that in the 3-foot drain, the ditch is 12 inches wide at the top and 6 inches wide at the bottom. For 12 yards of drain, 3 cubic yards of soil would have to be excavated. The $3\frac{1}{2}$ foot drain, for the same proportions, would be 13 inches wide at the top and in 12 yards in length there would be very nearly $3\frac{1}{2}$ cubic yards of earth. There would be 3 lines of 3-foot drain to perform the duty of 2 lines of $3\frac{1}{2}$ foot drain, so that the proportion of work required to dig the drains for a given field would be 9 for the 3-foot drains to $7\frac{1}{2}$ for the $3\frac{1}{2}$ foot drains. Since the latter would be somewhat more difficult to dig on account of going deeper, the cost in labour for the two methods would be nearly equal as 9 to 8.

It would appear, therefore, that for general purposes the deeper drain is more efficient and less costly. On the other hand, if the drain is too deep, in a clay soil the surface water would be too long reaching the drain, and one important effect of draining, the earlier working as a consequence of earlier drying of the soil, would be lost; and in a sandy soil, the deep drain would lower the ground water so far that the weaker capillary power of the sandy soil might be unable to carry water up to the roots of shallow-feeding plants. A moderate depth then, is to be recommended for general purposes, and for average conditions drains laid $3\frac{1}{2}$ feet deep and 100 feet apart will provide good drainage.

Engineering for Land Drainage.

Outlets.—The most important consideration in drainage operations is the selection and preparation of a suitable outlet for the drainage waters. All other details of drainage may be correct, but if the outlet is faulty or insufficient, the working of the whole system is faulty and insufficient to the same degree. Much of the expense of draining an area of land is often incurred in reaching a satisfactory outlet, owing to the fact that there is no natural drainage basin near at hand, and the drainage water has to be carried some distance through channels specially prepared.

Different Systems of Drains.—The drainage water from a field may empty, through a number of separate outlets, into a creek bed or an open ditch; or the different lines of tile may be grouped by emptying a number of smaller drains into larger drains. In this discussion we shall use terms referring to various uses for drains, as follows:

A *Main Drain* is one which is used to collect drainage water from smaller drains and conduct it to some open ditch or natural stream.

A *Sub-Main* is a drain which discharges into a main, and is itself a receiving-drain for lines of smaller tile.

A *Lateral* is the smallest drain in the system, and discharges into a main or sub-main.

The Natural System.—This is so called because the drains are laid in the low places and natural water-courses only, and are thus an aid to natural drainage. Such drains are compelled to do duty sometimes for a very large area, since the water from surrounding high lands is drained through them, as well as that which rightfully belongs to the area immediately drained.

The Grouping System.—This is an extension of the natural system, and is applicable to areas having low, wet basins separated by high dry land. A main is laid in the lowest land of each basin, and laterals leading out in all directions as far as necessary.

The Gridiron System.—This is the approved method for draining whole fields thoroughly. A level field of close, retentive soil obviously requires uniform drainage throughout, not detached and

isolated lines or groups of drains. Thorough drainage consists in removing the water from all parts of the field so as to have uniform conditions of moisture, texture, and temperature at all times and in all conditions of weather, and where the soil of the whole field is uniformly tenacious of water, a uniform system of drains should be adopted. The gridiron system consists of equidistant parallel lines with mains and submains for collecting and conducting the water to some outlet. This system has the advantage, over the one following, in having only one outlet to build and keep clear.

The Single Line-System.—This is similar to the gridiron but has no mains or submains, each line having its own outlet in the ditch. The system is suited to large areas with only slight fall, the drains made being laid in the direction of greatest slope.

(To be Continued.)

HINTS ON HARNESS. AND HOW TO PRESERVE IT.

For this climate the use of brown leather is advised, which was tanned without the addition of artificial colouring, whereas black leather is produced by the use of a dye into the composition of which iron enters largely, and which has a tendency to injure the surface of the leather. The surface of some leather peels right off, owing to the dye having gone too deep, or to neglect on the part of the tanner. To get a good leather it must be tanned properly ; but this is often not as well done as it should be. However, with good leather and well-made harness, care and attention will keep it in good order for a long while. The saddle and harness should not be hung up by the straps, or left out in the weather. There should be a proper place near the stable, but not in it to keep it when not in use. It is at all times better to hang harness, saddles, etc., in a room handy to the stable, but removed from the pernicious fumes that arise from the urine. If it gets mud on, scrape as much as possible off with a very blunt knife or piece of hard wood cut into convenient shape, then use warm water. The water must not be hot, and should be applied with a sponge or soft brush. Place the harness where it will dry—not too close to a fire—and give it a coat of neat's-foot oil or other animal fat. This will dry in and nourish the leather. Mineral or vegetable oil must not be used. A harness dressing, applied with sponge or clean cloth, will improve the appearance of the leather. The buckles, hames, and other parts made of nickel or German silver, should be cleaned with polishing paste. Rub the tongues of the buckles with an oiled rag, as these are usually of iron. Buckle the collars, and where possible, shift the straps occasionally, so as to buckle into different holes. Saddles should be cleaned with soft soap and water, using as little water as possible. Use brown composition when the saddle is dry. It has been recommended to soak new collars in water before putting them on, so that they will fit the horse's shoulders. One can-

not agree with this plan, as owing to the bulk of straw, it took a long time to dry once it was thoroughly soaked, and was likely to result in the stuffing rotting. Such treatment was unnecessary, as any practical tradesman could supply a collar to fit the horse without such injurious treatment. In regard to fitting collars, most horse-owners want a collar larger than necessary. For draught horses, the pipe collar was the best, as it is in the shape of the horse's neck, whereas the round collar is not. A new collar should fit fairly tight, as it will get larger with use, whereas a collar that is too large cannot be made to fit without chafing the horse at some point. Collars lined with leather are better for buggy or other fast work, as the collar is cooler than cloth, though it requires more looking after, and if the sweat is not cleaned off the leather will most likely crack. Some people ask that the collar be lined soft; but this is a great mistake, as the firmer the collar, providing it fits the horse, the better. In regards to repairs, the copper rivet, properly used, was a very useful article. Often, however, they were used too long, with the result that the shank bends, and will not bear up as it should do. For joining two pieces of medium leather a $\frac{3}{8}$ -inch rivet will do; but for stout leather, use $\frac{1}{2}$ -inch rivets. A No. 4 saddler's punch, a piece of lead or hard wood to punch on, a rivet set, a cutting tool, and a hammer were all that were required for mending work. If hard wood is used for punching on, they must punch with the grain, or the tool will be spoiled. There were various other kinds of rivets, or staples, for mending harness; but in his opinion, none equal to the copper rivet for strength and durability. In riveting the reins, the work must be well and neatly done, otherwise the rivets may catch in the terret or hames, and cause an accident.—*Journal of Agriculture, S. A.*

AYRESHIRE COWS.

WE have been asked to give information by letter about the Ayrshire breed of milch cows, and as interest in milch breeds is getting keen, we publish the details wanted. It may be doubted if, as purely dairy cattle, suitable for cheese-making or the milk trade, there is a breed in the British Islands that will surpass the Ayrshires. For producing a maximum quantity of milk from a minimum quantity of inferior quality of food, and for thriving in an uncongenial climate on land that is only of moderate fertility, there are no cattle superior to the Ayrshire; while for vigour and hardihood of constitution and adaptability to conditions, for energy and strength of will, and for industry and activity in search of food, where food is not too plentiful, the Ayrshire cow has probably no equal. Many judges consider that the build and outline of a first-rate specimen of the Ayrshire cattle is as nearly as possible the ideal of what a dairy cow should be: that is, she is light and narrow in her forequarters, but wide and spacious behind. But the Ayrshire

has certain faults. In the first place she is decidedly inferior to any other of the Scotch breeds, or of any of the English breeds, save the Jerseys and the Guernseys, as a beef-producing animal; in the second, she has hitherto been bred with short and stumpy teats, which add to the difficulty of milking her, although breeders are now remedying this; and, lastly, she has an untiring pugnacity of disposition, which is a frequent cause of injury to her fellows, so that it is a wise precaution to tip her horns with knobs of wood or iron. But she is an excellent milker, yielding for her size and consumption of food, more of the lacteal fluid than any other breed.

NOTES ON PRUNING LONG "TOP" COFFEE.

THERE is great diversity of opinion as to the advisability of growing "long top" coffee under any circumstances, some authorities affirming that with some soils and situations, "long top" is the most profitable form of cultivation, while others affirm that it is inferior to "short top," both in yield and quality.

It is a fact that all the coffee in "Costa Rica" is grown on the "long top" method, that the yield there per acre is very high, and that the quality is also high, is demonstrated by the market reports.

It is a fact that several thousands of acres of coffee in Jamaica, which if properly pruned on the "long top" method, would yield much more and better coffee than they do at present.

Unfortunately, it would appear that the majority of cultivators who grow "long top" coffee do not prune at all, except perhaps in the rudest fashion. Pruning is usually understood to mean, keeping the trees low, or short top. Hundreds of times I suppose I have been told when speaking of pruning, that "you cannot keep the trees low on the land or they will die."

The principles of pruning coffee whether by the long or short top method, are exactly the same. You must grow each year a fresh supply of wood, to supply the trees with young and vigorous wood to bear the future crops. You must each year cut off the old worn-out wood, which, if left on the tree for the following year, will not bear, or if it does, be worse than useless, by bearing light coffee, which will spoil the quality of the coffee borne by the good, vigorous wood. It is very easy to see which wood bears good coffee, and which bears bad. Pick a few berries from old wood, a few from young wood, cut them open and see what is inside, and you will be taught the lesson at once.

Then remember, that by leaving on the old wood, you have prevented the young wood from bearing as much as it would have done, and you have also hindered the growth of still younger wood, which should give a crop next year.

All wood which *bends over* should be cut off, cutting off down to where young shoots are growing. Follow this up by selecting two of the biggest and strongest young shoots, and pulling off all

the others, you will then get two big strong shoots, which will bear plenty of good, heavy coffee. Every year grow two more young shoots, and every year you will have a crop of good coffee, instead of a very big crop of poor coffee one year and none the next.

This is the best year I have seen for some years for heavy pruning, as the continued rains have made the trees grow and not bear.

All useless wood can be cut out and still have plenty of good wood for next year's crops.

Do not be afraid to thin out the trees, you must have noticed that the trees on the outside of the coffee walks bear the best, while in the middle they bear very little. The reason is that the trees are too thick, the inside ones get no light nor air, like the outside ones, and so do not bear.

W. CRADWICK.

FRUIT MARKS IN CANADA.

AMONG the recommendations of the recent fruit conference at Ottawa, was one that the fine imposed for infraction of the Fruit Marks Act should be largely increased. There is certainly room for some improvement in this direction, and it might be advisable to do away with the fine altogether after a second or third offence and substitute imprisonment instead. As the law now stands fraudulent practices in apple-picking are punishment by fines, whether it be the first or tenth offence. A person so dishonest as to perpetrate a fraud in the packing of fruit, is not deterred from the act by the prospect of a fine, so long as he can make a profit by the transaction over and above the fine, as many of them do. We understand that some packers in a certain section east of here held a meeting last fall and decided to pay a fine, as they found they could do so and make money by branding inferior fruit XXX. Giving publicity to the trial and conviction is not much of a deterrent in such cases, so long as the convicted party is determined to be dishonest. The remedy is imprisonment without the option of a fine after the second or third offence. If a person realizes that a term in prison awaits him if he continues in his fraudulent practices, he will consider well his ways before going that far. It is impossible for the inspector to examine every barrel a packer ships in a season, and, consequently, he can send forward a lot of fraudulent fruit and be detected in only a comparatively small number of shipments. Because of this, a minimum or maximum fine per barrel does not count for much, whereas a lumpsum commensurate with the offence committed and imprisonment for the second or third offence would prove a positive deterrent in most cases. If punishment is to be meted out to fraudulent packers, let it be sufficient to be effective in putting a stop to the fraud.—“Farm World.”

F E N C I N G.

A young planter in Tobago, a reader of this "Journal," writes :—Live Post Fencing.—The common hog-plum I use most. Posts not less than nine feet long, because the cattle will prevent them sprouting if less than $6\frac{1}{2}$ or 7 feet out of the ground. Do you know how long a cow's tongue is? It will reach a jolly sight further than you would think. Young cedar trees up to four or five inches in diameter will grow readily if dug out with a good proportion of root, also the Immortelle Tree—any kind. Don't use cut limbs of the latter in dry soil, they are less likely to grow than the plum.

Cocoa Plants.—(An extra point on Mr. Cradwick's article). Cocoa seeds are like eggs. Why? Because a chick sometimes has to be helped out of the shell, and the hard outside skin of the cocoa bean is just like a shell. It will not open sometimes, to allow the cotyledons, or first leaves, to get free. Help the plant a bit by simply taking off the dry skin. Sometimes again the seed is too deep in earth, and the young stem cannot exert power enough to lift it into the air. Raise it gently and it will soon straighten itself and catch up the others. "Catch on to all that the other fellow has had to learn by experience. Why cannot some more journal readers try their hand at a little journalism for the benefit of the "Journal."

A Snake Story.—In February, a middle aged black hen, with a nice lot of 10 chicks, was put in an old sugar tache to keep the chicks from straying. One morning I picked up a "horsewhip" snake $2\frac{1}{2}$ feet long, that had paid her a visit, with the unexpected result of being pecked to death by the hen. I am keeping that fowl?

C. V.

P L A N T B R E E D I N G.

THE first grand principle in the improvement of plans is selection, continued selection, and if possible, on a large scale; for each plant has individual characters, as has each human being.

To the careless observer all flowering plants are alike; with more experience and training one learns to know the various species of these, and by a still further study, individual differences are appreciated. It is by selecting seed from some individual in a species which shows even a faint tendency towards the object sought for, planting the seed, and from these re-selecting in the same line, that improvements are made. This continual selection and re-selection must be followed from season to season, until the ideal is attained.

But some plants are exceedingly variable and pliable, others stubbornly fixed in their habits and tendencies. Where the slightest variation is seen, great ones can by patient care, be produced.

We have spoken of selection as the first principle in plant improvement ; but progress is often accelerated a thousandfold if crossing two somewhat differing species or varieties has first made the plants more variable.

When two plants have been grown under somewhat different conditions for some time, they acquire slightly different tendencies and habits. Such plants when crossed will bear seeds, which, when planted, will produce a more or less "mongrel" or variable race of plants, and plants raised from these will be still more variable, thus giving the grower a great range of variations to select from. This is the real object in crossing plants, and as much progress in their improvement can often be made in a few years by selection after thus crossing as could be made a century by selection alone.

The operation of crossing in many cases is very simple, although exceedingly complex in others. It is, of course, necessary to have the plants to be operated upon in bloom, for it is only by dusting the pollen dust from one plant on the stigma of the other and planting the seeds resulting from this cross that the habits and tendencies of the two plants can by any means be combined.

The blossoms to be operated upon should have the pollen-bearing anthers removed early in the morning, before the wind or insects have scattered it on the stigma, so that the pollen which has been collected from the other variety may be applied first.

The blooms thus crossed should be carefully marked with a tag or string, and the seed gathered by itself for planting at the appropriate season. From the resulting seedling plants the one approaching nearest to the ideal sought should be selected. From this another generation of seedlings to select from in the same way will be produced. Among these seedling plants some will generally resemble one of the parents, others a combination of both parents, and often still other and more complicated combinations and variations will appear among them.

Sometimes there may perhaps be found a plant or two having improved vigor, handsomer leaves, larger and brighter colored blooms, or larger and more delicious fruits. If the plants operated upon are perennials, this improved individual can be multiplied to any extent desired by means of buds, grafts or cuttings, but if an annual it will be necessary to plant and replant the seeds from the chosen ones, until by continued repetition in the same line the stock becomes fixed in its habits in the new departure.

This result can generally be obtained by raising five or six generations, often less, often more. What a satisfaction it is to know that you have produced a fruit which shall be so valued that its culture shall encircle the globe and furnish better food for millions of fellow creatures for ages to come, or to add a new quality of fragrance or beauty to a flower which shall gladden the hearts of half a dozen nations, and open the way for still other illimitable improvements.

We have it in our power to change the forms, sizes, colors,

fragrance and numerous other qualities of flowers, the size and shape of the trees and plants which produce them, to increase the quantity produced, to make them appear early or late in the season, to make tender ones hardy-proof.

It is in our power, moreover, to mold fruits, nuts and vegetables to almost any size, form, color or flavor desired; to make corn, grain and grasses tall or short, and richer in starch, sugar, oil or other products; to increase the amount of sugar in cane, beets or other sugar-producing plants; to improve the flavours and aromas of tea, coffee, cacao, camphor, cinnamon, cloves, and thousands of other plants; to improve in every respect cotton, flax, hemp, and all other fibre-producing plants; to increase the growth of timber trees, and, in fact, to guide the plant forces with as much precision as we do now the mechanical and chemical forces, and with even more striking results in the advancement of the race.

The improvement of a fruit, grain, grass or vegetable of any kind, so that it will ever afterward do better work for man, is a matter of no small importance. We have stated how this may be accomplished by selection and re-selection of the best, instead of by stupidly planting the seeds of all plants, good, bad and indifferent.

Keen powers of observation are required in this work and a quick perception of slight variations.

LIME-BURNING.

MANY forms of limekilns are in use, but they are reducible to two types (1) That in which the limestone is in contact only with the products of combustion, being separated from the fuel itself and known as 'burning with long flame,' and (2) that in which the limestone and fuel are mixed or 'burning with short flame.' The former yields cleaner lime, as it is not contaminated with ash, and is used for building purposes, while the latter is more economical of fuel and can be adapted for continuous running—the lime to be used for agricultural purposes. The kilns are usually of the form of an inverted cone, and are packed with alternate layers of limestone and fuel, the burnt lime being removed through openings at the bottom. The process can be carried on continuously, charging at the top and unloading beneath by proceeding regularly. Two such kilns with a capacity of 1,200 cubic feet furnish on an average about 250 bushels of lime per day. The proportion of fuel (coke) to limestone is about one of fuel to four of stone; in place of coke, wood can be used, the proportion of fuel to stone being then a little higher; the product (quicklime) is rarely more than 50 per cent. of a given weight of limestone dealt with in the kiln, though, in theory, the yield should be 56 per cent. With a good deposit of limestone and intelligent supervision of burning operations there should be no special difficulties in producing good lime.

ORANGES.

THERE is the usual shipping of little juiceless, green, oranges going on, thus early—middle of August—there is the usual outcry against it, and these oranges sell as usual at a remunerative price abroad, we understand, if they arrive in good condition ; and as the price offered here for even such, is double what would be offered for real good, oranges, six weeks later, the trade goes on every year. It is not such an easy thing to fix the blame for this trade—if there is blame—simply because the shippers would not ship unless they had orders from fruit firms in the north, and these would not order fruit unless they knew the public would buy it—which the public really does—and the grower, is of course, ever most ready to sell his product, when he is asked to sell it at a good price. It is not his business what is done with it—so he says. But those who have genuine interest in the future, as well as the present of the orange trade of this colony, cannot help thinking that the Jamaica orange industry deserves a better fate than to last two months of the year, and the Jamaica orange a better name than it has. It is probably the most freely ‘cussed’ fruit in the world, by those who do business in it, under our present system. Producer, buyer, shipper, seller, all use language concerning it, and it is really a wonder the trade has lasted so long. If there had been no trade at all, if oranges required to be coaxed to grow, and required to be artificially stimulated all the time, we no doubt, would have been spending money, and effort, and energy, at home and abroad, in carefully growing oranges, in organizing a trade, and working for markets. We have the orange trees spontaneously, we have the markets to ourselves in August and September, we could have still good markets during October and November, and in February, March and April—if we did anything horticulturally to get good fruit in these months. We have got the length of really good curing, packing and grading, but we do not work the trees themselves to bear large and firm fruit when it is wanted. Seedling trees require only keeping the necks clear of weeds, the pruning of useless branches, and the taking off, of moss and lichen. Probably, the pruning and so allowing light and air to play through the trees, especially in damp districts, would cause moss and lichen and tree ferns to disappear.

THE CURING OF FRUIT,

FORMERLY, whenever shipment of fruit arrived on the other side in a wasty condition, the blame was always put down to the negligence of the packer here, and in the past there was good reason for this, when we remember how fruit used to be shipped ; but of late years there has been a gradual improvement, until now the curing and packing by responsible shippers is as carefully done

as anywhere else. But during the month of July, which was a comparatively dry month, and fruit was picked, cured, packed and shipped under the most favourable conditions, reports to hand tell of fruit arriving in a "shocking condition." This not only applies to oranges, but it applies to mangoes, and to a shipment of lemons sent under our auspices, a fruit that when well cured, as the fruit in question was, keeps until it simply dries up, as previous tests showed. Now, nearly the whole of the fruit sent by the same steamer, we understand, was reported upon as in poor condition, which proves to a certainty, that it was the conditions on the steamer that were at fault. We learn now that this was a time when there was no doubt about a market, no doubt about large prices prevailing for oranges and for lemons, and when lemons indeed were realising in London 14s. to 45s. per case of 420. The fruit was sent, and a loss occurred, entirely owing, it is supposed, to the shipping conditions. This matter calls for some enquiry, because shippers have been blamed for poor packing so long, and merchants in London will no doubt continue to blame them, when it is now unjust to the majority of shippers. If the Steamship Companies cannot make proper arrangements for taking other fruit besides bananas, then they should not accept freight. Clause No. 9 of the Elder Dempster and Company Contract reads:—"All fruit conveyed under this contract shall at all times during the period of such conveyance be protected by the contractor by such precautions and system of ventilation as shall from time to time be the best known for the purpose of preventing such fruit from being damaged by wet, effluvia, steam, heat, undue pressure or any other causes." Is this being duly carried out?

Last year, Jamaica oranges were on sale in Stettin (Pomerania) in November, and as this was the first time this fruit had been placed on the market, good prices were realised. The import duty on this fruit (which could have the market in Germany to itself for nearly two months in the year) was 2s. $\frac{1}{2}$ d. per cwt., but since March, 1906, this had been increased to 6s. 1d.

INSTRUCTORS.

It will be seen from the Minutes published under "Board of Management," that an important Conference was held between the Board of Agriculture and the Instructors' Committee of this Society, and in the hour devoted to the consideration of Instructors, the meeting did good work in arranging Instructors for the different districts. Owing to the resignation of Mr. Hirst, there is a district vacant. Recommendations have been made to the Governor, wherein it is proposed that Mr. Cradwick take St. Catherine, St. Mary and Portland, which are served by the Railway so that he will be able to work expeditiously. Portland and St. Mary, especially the former, have been crying out for an Instructor for a long time, and no parish in the island is in more need of the same than Portland. This

arrangement, however, will leave the western district vacant, and it is proposed to advertise for an Instructor for this position. However, it will not be easy to secure a man with the necessary ability, experience, ready speech, tact and discretion, and we may say intuition, necessary to make a good type of Instructor. Mr. Arnett is allocated a district, comprising Trelawny and St. Ann, the eastern part of St. James and north Clarendon, an extensive district and one not easy to travel about. Mr. Palache is allocated the district including Manchester, eastern St. Elizabeth and lower Clarendon; Mr. Briscoe who is stationed at Parade Gardens, Kingston, is to take St. Andrew and St. Thomas. Mr. Arnett and Mr. Palache have been acting as local Instructors under the Agricultural Society, and Mr. Cradwick and Mr. Briscoe are under the Board of Agriculture. Mr. Briscoe has taken the place of Mr. W. J. Thomson, now at King's House Gardens. It is regrettable that this matter could not have been settled before Mr. Hirst resigned, so that we should have had the benefit of an Instructor trained in the peculiar work already, so that no time would have been lost for any district, and in training another man. An Instructor may easily make great blunders, even though he is a man of undoubted ability, owing to want of adaptation to circumstances. It is easy enough to deliver a lecture, but it does harm to speak of things beyond the capacity of the hearers' minds, to grasp, or their circumstances to adopt, and there are no people more suspicious of anything supposed to be emanating from the Government than Jamaica settlers, none more ready to ask themselves why this trouble is taken with them, and what reason is behind it; it is difficult to get their confidence, it is easy to lose it, and once lost it is the most difficult thing to regain. Therefore, the position of an Instructor is a most responsible one, but we are afraid the work has not always been given the serious consideration its importance deserves.

POULTRY NOTES.

WE hear of heavy mortality among fowls in different districts, but it is not enough, simply to report to us that fowls are dying and ask what should be done to prevent the loss. The symptoms of illness should be noted and reported, and then we could form an opinion as to the trouble, the probable cause, and the likely treatment. At any rate, when deaths occur in epidemic form,—the first thing to do, is to clean the yard and the sleeping quarters, and keep the fowls away from their usual haunts for a time, if it can be done, but few people have fenced off runs. Then pans, with cool, clean water, should be set down in a shaded spot, and a dessertspoonful of Epsom Salts dissolved in each quart of water. This should be given every day for a week, then twice a week for three weeks, and always once a week as a matter of precaution. Where a few fowls only are kept they can be easily caught, and a bare teaspoonful of castor oil given every night for a week, instead of Epsom Salts. The feed should be only brown rice, or *corn well charred*, until it is quite

black, and occasionally, green bananas, potatoes, cocones or yams, baked until almost burned. The charred corn is a splendid thing for all troubles, where the droppings are seen to be wrong,—loose, green or yellow. Every fowl that dies should be burned, or buried deep beneath a fruit tree, and covered with stones to prevent dogs digging the body out.

* * *

Now is the time for those who intend to improve their fowls next year, to enquire about good young cocks, to put with their hens. Or if their hens are too poor, look out for good pullets to make a fresh start. Any time up to the end of the year, is time to get fresh blood as no hatching is usually done, or is recommended, unless a few for table use perhaps, until January, and no cock is therefore needed. It is a great mistake, and it affects the progeny, for cockerels to be used too young. Cocks of the small breeds are only fit at six or seven months, and the larger breeds eight to nine months. We ourselves separate the young cocks as soon as they begin to crow, and this makes them grow larger and become more vigorous.

* * *

SELL off your old hens, for table use, or put them in the fattening coop. Watch them carefully, and the moment any show signs of moulting, eat them at once, if they are not used up before. It is no use carrying hens over their second season, unless there is something remarkable about them, such as being a strong layer, or good mother. We have one Minorca hen for instance, in her sixth year, but she is not only a remarkable layer of large eggs, still, but she is large, for a Minorca,—6½lbs., and has always been disease-proof full of vitality ; she is thus worth keeping to hatch all her eggs. As a general rule, however, hens fail to be profitable after their second season, and they should be sold or used at home, for table. Feed the pullers well now, and those that are February and March hatched, should begin laying in October and November, and lay right on, when eggs are dearest. We have some February hatched pullets already laying, rather early for our particular purpose.

SEASONABLE HINTS.

FROM the middle to the end of September, is time enough to plant seed like tomato, cucumber, garden egg, cabbage, etc., in seed boxes or protected nursery beds, to transplant as soon as the "October Seasons" are over. The ground for the garden should be prepared in September by roughly turning over the soil with a fork. There is no need to make it fine ; it is better to be left rough to be well aerated, and mellowed, by the action of the weather. The heavy rains of October will fine it down, and then whenever it is dry enough to work, it should be gone over, and the soil made as fine as possible, the beds made, and the plants from the seed boxes put in. Other seeds like turnip and carrot, beet and radish, parsley and lettuce, should then be planted at once also. For cabbage, tomatoes and garden eggs, the soil must be very rich or made rich. Very

few of these who keep a garden ever use liquid manure, but it is a splendid help to push on the growth of all garden crops, once the seedlings or transplants make a start to grow. Liquid manure, judiciously applied, can bring on cabbages and tomatoes two weeks earlier, and make the former make larger heads, and the latter larger and finer tomatoes. Fowl droppings make the best liquid manure, if used fresh. A quart of fresh droppings put in an old kerosene pan, with two gallons of water added, allowed to stand two days, then well stirred up, and the liquid applied in small quantities of half a pint to each cabbage, and somewhat less to each tomato plant, is about the right way. Once a week is sufficient generally. On a large scale, an old pork or flour barrel may be used, and the fowl droppings stored there, and water kept to the top. Every time the liquid is to be used, it should be stirred from the bottom with a strong stick. New vegetable seed will arrive by the middle of September.

* * * *

CORN.—The “fall” crop of corn should be all planted by the time this Journal is issued. A small plot should be given special attention, so that the resulting corn will be especially fine, and be used for seed. A change of seed by purchase or exchange, with a grower in a different district, every three crops, is advisable. Another good practice, is at every crop, to mix half your own seed with half of new seed, and plant. There is thus always an invigorating process of crossing of the pollen going on. Guinea Corn can be planted up to October, (see paragraph in ‘Comments’ concerning this product).

* * * *

POTATOES—Get the land ready for Irish potatoes now. Trench it over with the fork, and let it lie in the rough to get the October rains upon it, and prepare as advised above for vegetables. As soon as the rains are over, say in the first and second weeks in November, lay off the drills, $2\frac{1}{2}$ feet apart, about 6 to 8 inches deep, and plant the potatoes whole up to the size of a small hen’s egg; above that cut into two or three bits, although we, ourselves always prefer a moderately sized *whole* potato as seed—and plant a foot apart in the drill. If the land chosen is not naturally rich, it should be “penned” with stock beforehand, or good manure put along the lines of the drills before they are opened up, as it does not give best results to put the manure in the drills, and plant the potatoes right upon it. Another way is to make the drills 9 inches deep, put in the manure, draw in a layer of soil to cover it, an inch or so, and plant the potatoes. Cover up with three inches of earth, so as to leave the shape of the drills in a little furrow in the line of planting to be hoed levelled, when the plants are three inches or so up. This especially where dry weather comes on in January. In wet districts the potatoes are planted more shallow and covered level; then hilled up when the plants are four inches up.

COMMENTS.

POSTAGE.—Will correspondents please note that postage to this Office is NOT free, only our outgoing postage is free.

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PRIZE HOLDINGS.—It is proposed to begin the judging of the entries in the Competition for prizes for the best kept Small Holdings in St. Ann in November, in Manchester during December, finishing before Christmas, and in Trelawny in February. Entries should now be made as quickly as possible, especially in St. Ann.

* * * *

COTTON.—We have a supply of native Sea Island Cotton seed for planting at 3d. per lb., and also some selected and disinfected Sea Island seed from the Imperial Department of Agriculture, Barbadoes, at 4d. per lb. In some districts it is still time to plant, up to October, and we shall be very disappointed if a great number in the dry districts do not at least plant a chain or two of this selected seed, so as to get seed for planting next year, March and April. We made some remarks in last month's Journal about our disappointment at the want of progress the cotton industry has made here. We said that if an Instructor had been working at that industry a great deal could have been done. Whenever the arrangements for Instructors were settled, Mr. Briscoe at once started, working on the cotton industry at Yallahs and Bull Bay districts, and in St. Andrew, and with a little success in that some few have promised to plant from a chain up to an acre as an experiment. The good offer of Sir Alfred Jones of one Gold and two Silver Medals for the best cultivation of Cotton, will not be largely competed for we are afraid, but still we hear of some intending to go in for it.

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CARAVONICA COTTON.—We have sent the Caravonica Cotton Seeds received from Australia to many enquirers, of whom we have a list. We hope to get reports of the growth of this new cotton in due time. Some have advised us that the seeds did not grow, but that is entirely their own fault. We, ourselves, planted 36 seeds and 36 plants grew, and we have some now almost two feet high in one month. We still have more free seeds to give out for test.

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VEGETABLE SEED.—We are sorry so few Branch Societies have placed orders for vegetable seed this year. However, individual members can always get their wants supplied locally, as good supplies will be stocked by Mr. C. C. Cody, Kingston, of seed from the United States, and by Messrs. W. H. Johnson & Co., Ltd., Kingston, from the great English firm, Sutton & Sons, as advertised in this Journal.

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GUINEA CORN.—This seed is very scarce, and we had to import to get a supply for some members to plant. In the old times, we learn, that Guinea Corn was freely used for human food—Guinea Corn pap was an infants' food, and probably quite as good in effect as many of the patent foods infants are experimented with now. As a poultry food, guinea corn is the handiest food-stuff, consistent with good effect and combined with coconut "trash," it is as good a chicken feed as far more expensive mixtures. We have still a supply of imported seed, red and white, for sale at 9d. per lb., post free. A pound will plant two chains easily, and as we have tested the seed we can say it is all fertile. It can be planted any time there are

showers to start it. Instructive articles on Guinea Corn appeared in June Journal, 1904, showing the farmer practice of growing it when it was grown more extensively than now. When the poultry industry has now remunerative markets, there is more need to grow Guinea Corn than before, yet people will grumble at the price of imported poultry foods when there is hardly a place which could not grow a couple of chains of Guinea Corn. When planted 4 feet by 8 feet, peas can be profitably planted between, and pay for the weeding.

POTATOES.—Orders for seed potatoes should reach us by the middle of September, and our order will be despatched, shortly after the issue of this Journal. We shall allow a margin of a few barrels over the orders received so that some orders may be taken later. We are sorry that each year people will not remember to order, and then ever so many just at planting time are eager to get potatoes to plant, and cannot get them.

COCOA.—The cocoa crop this year was a fine one, the wet weather seem to suit it; and with a continuation of the same genial weather—for cocoa,—as we have had, the crop for the second half of the year should be nearly as good in many places. Our exports of this product already show a very substantial increase, indeed the figures for this year over last, to July being 34,582 cwt., against 15,519 cwt., that is more than double, in less than four months. In the week ending July 19th this year, we exported 640 cwt. against 60 cwt. during the same period last year. In fact our total for 3½ months of this year, 34,582 cwt., is already greater than our total exports for any previous year except 1902 when we exported 39,953 cwt.

COFFEE.—On the other hand, coffee will be very moderate as a whole, although there are a few districts favoured with a heavy bearing. As there has been no drought at all during the growing season, nothing but favourable weather, the beans ought to be good. Our exports, so far, for four months of the year, are stated at 13,832 cwt., against 10,063 for the same period last year.

PINE-APPLES.—The report we publish, written by Mr. Robert Thomson, is a very interesting one.

SHOWS.—It will be noted from the report of the Hanover Show, published in Branch Notes, that they have just managed to square their finances, and leave a trifle in hand. We particularly call the attention of other Shows to the following wise paragraph in the report:—"A small Committee was appointed to note certain things about past Shows with a view to improving any future Show that may be held." We are afraid most Show Committees do not trouble about doing this. We ourselves usually make a report, and call attention to items that may be better arranged, or may be improved in future, but it would be well if Committees would join us in going round to consider this on the day of the Show.

The Show at Brown's Town was a success so far as attendance and the exhibits of stock generally, but we ourselves were much disappointed at the rather poor display in the Agricultural Products Section—certainly it was not up to what was expected. Some reasons for this are given in our report printed in another part of the Journal.

The little Show at Frankfield, although not getting the most favourable weather before the Show,—and bad weather, preceding, always affects attendance from far away districts,—did exceedingly well both in stock and agricultural products for a beginning, and we daresay if kept up will make a great improvement next year. The balance at credit is most satisfactory. Speaking for ourselves, we see in the satisfactory results from small Shows, the wisdom of caution here, because sometime ago it was proposed to encourage only three or four large Shows in different parts. As a matter of fact, the small Shows do more good among the people among whom agricultural work is most aimed at, than the large Shows, although both are necessary.

The small Show held under the auspices of the Fair Prospect Branch in Portland, was not the success expected so far as finances are concerned. The products, however, made a fair show for a beginning. This district has been really much neglected, and although we should expect Portland to be an advanced parish, it really is more backward than most other parishes in the island in the way of agricultural progress. The Branch Societies there have been most eager to get the services of an Instructor.

Kendal Show.—We have heard no more about Kendal Show than that it is to be held on November, 28th. We trust that an early start will be made with the arrangements, so that it may be duly advertised.

Savanna-la-Mar Show.—The Committee of this Show are already in the field with their arrangements, and if they work along carefully, holding meetings at various points in Westmoreland to keep the Show in the forefront, they should make it better than ever. Their appropriated date is New Year's Day.

The Show being considered to be held at Christiana, it is likely will be fixed for a date in the second week of March, a time when coffee, ginger,—the great product of the district—and vegetables are in. Bananas, oranges, and small settlers' mules and cows will also be in strong competition.

Port Royal Mountain Show.—It is very regrettable that the Port Royal Mountain Show is defunct, but it is still more regrettable that the Society itself, one of the oldest, has also become defunct. The Jamaica Jockey Club gave out that it was their intention to hold a Show last February, and this was one of the reasons that caused the Port Royal Mountain Show Committee to resolve

to drop this Show, as there would have been no use running two Shows in lower St. Andrew, while the Jockey Club could probably afford far more attractions in the gate-drawing events. But for a real, good solid show of agricultural products, the Port Royal Mountain Show was not excelled in the island, and agricultural products are of more vital importance than riding and driving competitions. We trust the Jockey Club will see to it, that the holding of a Show is kept strongly in view, and that a date will be fixed six months ahead, so as to allow time for the proper working up of the Agricultural Products in the small settlers' districts.

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THE West India Bulletin (No. 2, Vol. VII, 1906) issued by the Imperial Department of Agriculture for the West Indies, has a review of the efforts of the Imperial Department for the West Indies as contained in the letter addressed by Sir Daniel Morris, to the Secretary of State for the Colonies, and which deals with the sugar industry in the various islands, including Jamaica, the cacao industry, the fruit industry, the cotton industry, the rice industry in British Guiana, the lime, tobacco, rubber, sisal hemp industries, the rearing of stock, the treatment of diseases, agricultural teachings, agricultural publications, the Imperial value of the Department. There is some talk of the Home Government curtailing the work of the Department. It would be a great blunder to do so. The work done has been most valuable, yet it is only a beginning, and those who know the West Indies well, know how easy it is for a relapse to take place, how readily people will relax effort if they are not stimulated, urged, and encouraged in a persistent way, with new and hopeful knowledge set before them, and strenuous effort ever evident to spur them to activity. The different islands like to know that the Home Government is deeply interested in their welfare, and as their welfare wholly depends upon agriculture, there can be no more useful link between the West Indies and the Mother Country, than the Imperial Department of Agriculture. In the sugar industry alone, new life was instilled into that industry, and especial good done by the introduction of seedling sugar cane. Two central sugar factories have come into operation in Antigua, two sets of steam ploughing plant have been introduced there. The introduction of seedling canes has been a wonderful thing of itself. According to the Director of Sugar Cane Experiments in Hawaii, the Demerara Seedling, No. 117, yields from 1 ton to 1½ tons more sugar to the acre. In Louisiana, the best cane in the experiments carried on was seedling canes D. 95, and D. 75. The Barbados Cane B. 147 has given excellent results in Queensland, while another Barbados Cane, B. 208, is reported to have given 69 tons of cane per acre with 22.2 per cent. of glucose. Here the same cane under irrigation gave at the rate of 66.5 tons of cane per acre. As an instance of what now takes place, in one island, over 20,000 plants (tops and portions of stems) of new seedling canes are annually exported from Barbados to other parts of the West Indies. For the cacao industry much has been done, yet it is only a beginning also. There is much to be discovered yet about the best methods of cultivation, and treatment in general, of cacao trees, to get the best results, especially in manuring, and in the

prevention of disease. Perhaps, the most striking value of the Department has been shown in the cotton industry. It is safe to say without its efforts, no cotton would have been grown in the West Indies. Looking at the great dependence of the Home Country on the cotton manufacturing industry, the production of cotton within the Empire is truly Imperial work. 3,755 bales of cotton were produced in the West Indies in 1905, and in the first quarter of 1906, 2,285 bales, the value of the latter being estimated at £36,268. It is most regrettable that Jamaica has done least of all, except British Guiana, and yet we have areas exactly suited for its cultivation.

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COTTON.—The Steam Ginnery at Spanish Town has started ginning, and anyone having seed cotton can dispose of it there, or send it to be ginned on terms to be learned from the Hon. T. H. Sharp, Spanish Town.

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TOBACCO.—Once before in the time of the Cuban troubles, a great deal was said about Cuba's extremity being Jamaica's opportunity in Tobacco, but Jamaica made very little of it. Now there is another opportunity for Jamaica to sail in and show what she can do in the tobacco line. The Cuban crop last year was small, and was so poor, that half was unfit for use for cigarmaking. The price has gone up too by a half. Now the Cubans are at it again, fighting amongst each other, and it is reported that no tobacco can be planted this year, on account of the unsettled state of the country, so that the outlook is that little Havana Tobacco will be available for next year. The time for planting the seed is during August and September. There is still time for nurseries to be made and planted out. Everybody who intended to plant a little should consider whether to plant more. Those who have suitable land but have never grown tobacco should find this a good opportunity to make a start.

BUD-ROT DISEASE OF COCONUT.

Botanic Station, Belize, 4th July, 1906.

SIR,—I enclose herewith a letter from a Mr. John Gray, a coconut planter in this colony, and one of the most successful to keep his coconut trees from the bud-rot disease.

Mr. Cradwick has certainly sounded a fresh note when he states that the flower spikes is the "fatal spot" for this disease.

E. J. F. CAMPBELL.

Manitoe, 11th May, 1906.

SIR,—I have studied Mr. Cradwick's carefully, and as my opinion on the subject is different from his, I suppose I had better luck in finding out what we both sought. I hold that the planter who knows how can readily clear his property of the pests, and the trouble is the lack of regulations preventing the neglected places sending out swarms of insects to kill the trees on other people's places who do not allow the insects to breed there.

I cure most of my trees, and very few die, but of course, I take hold of them before the poison has had time to ruin my chance.

I think the "fever" or "bud-rot" is produced by a fermentation caused by some very small weevils, and is spread mainly by flies, I have cured hundreds of trees, often the work takes a minute or more, sometimes I work at a tree for several weeks before it is cured or dies.

I hold that some of the bugs are natural enemies of the coconut tree, and that after they taste the fermenting juice of the coconut tree, they will kill the tree when they have a chance, and only those that have so fed on the tree need be killed. I use the coconut cabbage or some other palm to attract the pests and destroy them in many ways.

I am sure that if Mr. Cradwick will search the sick trees below the ground he will find that there is a treatment that will cure trees that spraying could not save.

I keep traps set all the time. I expect that the reason I succeed is that I am careful not to let the bugs breed on my place. I hold that the large weevils are not so bad as the flies, and ambrosia beetles and small weevils.

In regard to the ill-drained land favouring the bud-rot I use a vine with a yellow flower in the low ground, and it does the trees a lot of good, in fact with it I can have fine trees, where without it the trees will not grow, it will grow where the swamp is so low that none of the legumes I know will grow.

There are plenty of men who could get up a book making the raising of coconuts a safe business as well as profitable, any short article is useless.

JOHN T. GRAY.

E. J. F. Campbell, Esq., Belize.

(We must frankly say that we cannot make anything of this letter. Neither can Mr. Cradwick. However, the "yellow flower" part has aroused our curiosity and we are enquiring what it is.)—Ed.

HOW TO VACCINATE CATTLE AGAINST BLACKLEG.

BLACKLEG is such a disastrous disease that we want to warn our readers against it. If there is none of it in your neighbourhood you may consider yourself lucky, but at the same time, be on the lookout for it. Cut this article out and paste or pin it in a place where you can refer to it. There is almost sure to come a time when you will want to know about Blackleg—what it is, and what to do for it.

Blackleg is a fatal disease of young cattle. Very few recover from it, and so far as is known, no medical treatment will do any good after the animal is attacked. The only thing to do is to prevent it by vaccination. Vaccinate in the spring and in the fall, even if there are no signs of the disease and none in the neighborhood. It's the mere question of saving money—of spending a dollar to save ten or twenty dollars. The question is not, "Can I afford it?" but "Can I afford not to?" A few calves or yearlings lost would pay for many vaccinations.

By using Blacklegoids, vaccination is made so easy, safe and sure, that there is no good reason for not doing it. There was a time when to vaccinate meant grinding a powder in a mortar—mixing with water, filtering, measuring and injecting a hypodermic needle. This required a great deal of time and even then was not accurate. The quickest, surest and safest way of doing the work is with Blacklegoids. With these there is no dose to measure, no liquid to spill.

A Blacklegoid is a little pill of Blackleg Vaccine—one pill is a dose. To use it, simply put it in the hollow needle of the injector,

thrust the needle under the skin of the calf, push the plunger, and the work is done.

Because they are so easy to use and effective, Blacklegoids are perhaps the best known and most widely used Blackleg Vaccine. Write the manufacturers for a little folder about Blackleg, which also gives further information about Blacklegoids. It is free. Address, Parke, Davis & Co., Detroit, Mich., and mention this "Journal."

COTTON EXPERIMENTS.

Corron experiments were carried on at St. Kitts on five acres of land, the property of the local Government, and may be divided into three heads : (1) manurial experiments ; (2) experiments in planting at different distances ; (3) experiments in planting seed of different kinds.

Each plot was almost an acre in extent and planted at intervals of two months, beginning with June and ending in October. June and August planting did best, October was very poor.

The picking was all finished by the end of February and the cotton trees pulled up.

The rainfall during the time under experiment was 38.69 inches ; 21.73 inches ; and 13.47 inches.

In the experiment three kinds of seeds were used, as follows :—(1) St. Vincent ; (2) Gilbert's seed, obtained from Dr. Watts from Antigua ; (3) La Guerite seed, grown at La Guerite the previous year from Rivers' seed. Each kind of seed was planted over $\frac{1}{4}$ acre, and this was divided into $\frac{1}{8}$ acre and planted at 5 feet by 3 feet and 5 feet by 2 feet. There was not much difference in results, but 5 feet by 3 feet was a little better. The cotton on these plots was planted early in August, and picking was finished at the end of February.

The cotton-seed from these experiments was ginned, and the cotton from each kind of seed was ginned and baled separately and shipped to the British Cotton-growing Association. The following are the ginning results :—St. Vincent seed, 2,853lb., extraction 28.2 per cent., 807lb. lint. La Guerite seed, 735lb., extraction 28.8 per cent., 213lbs lint. Gilbert's seed, 592lb., extraction 26.3 per cent., 156lb. lint. Centreville seed, 600lbs., extraction 29.3 per cent., 176lb. lint.—Total, 1,352lb. lint.

Report from British Cotton-growing Association.

The following report has been received from the British Cotton-growing Association :—Two bales St. Vincent seed—"clean and bright, staple fine, moderate length, value, 16d. per lb." One bale La Guerite seed—"clean and bright, staple fine, moderate length, value, 16 $\frac{1}{2}$ d. per lb." One bale Gilbert's seed—"clean and bright, very fine, long staple, value 17d. per lb.; since sold at 18d. per lb." One bale Centreville seed—"clean and bright, but wanting in fineness, value, 15d. to 15 $\frac{1}{2}$ d. per lb., since sold at 15 $\frac{1}{2}$ d."

INTRODUCTION OF FOREIGN BIRDS.

WITH regard to the introduction of foreign birds, about which there has been some correspondence in back Journals, we now publish a letter from Mr. John Harris, Naturalist, Newcastle-on-Tyne, who offered to supply birds at certain rates, and to whom we wrote giving our ideas on the subject. He has been at the trouble to get reports from authorities on the subject concerning Starlings and Magpies, and these reports exactly confirm the action of the Board of Management in recommending to the Government, that the introduction of foreign birds should be prohibited unless by special permission for experiment. As we have pointed out, such experiment has been made and we await results of their new environment :—

15, Clayton St., Newcastle-on-Tyne, 18th July, 1906.

SIR,—Yours of May 21st to hand, with thanks, and caused me a little more than curiosity; so have taken upon myself to get other opinions of *practical* people to answer the various questions arising from yours, and addressed a circular to the various fruit-growing county Secretaries and others, who have for years given close study to these birds. I enclose copies of circular and replies I have received.

After my previous offer, should prefer not to express my own opinion, but sincerely hope the enclosed will be as interesting to you as the collecting has been to,

Yours truly, JON. HARRIS.

FREDERICK SMITH, Esq.,

Fruit and Hop Grower, Loddington, Maidstone, replies :—

- 1.—Magpies are insectivorous and carnivorous, eating dead sheep, animals, small birds, etc
- 2.—They do not interfere with our fruit.
- 3.—In my opinion, they would not be likely to injure orange and banana plantations, but I should think they might be very destructive of such birds as humming birds, and they are fond of young chicks.
- 4.—They would not hurt cattle.
- 5.—We do not consider them a pest in Kent.

Devon, Naturalist, London, replies :—

Re Magpies and Starlings—The former will certainly not interfere with fruit or cattle, but will eat the eggs of Starlings and other birds if they get at them. Starlings will eat a little fruit, but are not great lovers of it, as long as they can get other insect life, and the quantity of grubs and other vermin they eat certainly countermands with the little fruit they would interfere with, Starlings do not interfere with cattle, they have a great habit of perching on the backs of sheep and other cattle and picking the vermin from the animals, the latter do not seem to object to their way.

T. G. WHITE, Esq., per the Agent General for the Government of New South Wales, replies :—

He is desired to state that the Starlings which have been introduced into Australia have increased rapidly, are not yet regarded as destructive to fruit, their attention being devoted to grain and insects. In dry weather, they have been known to attack ripe grapes, persimmons, and other soft fruits to a slight extent. The indigenous Grey Magpie is insectivorous, but attacks ripe grapes, pears and other soft fruits occasionally. The indigenous Black Magpie is wholly insectivorous and carnivorous. The Black Magpie which appears to be common in Australia and England, and is

in appearance and colour like a small crow, is naturally a frugivorous bird. In Australia, it attacks every kind of cultivated fruit, except oranges and passion fruit; as bananas are generally picked when still quite hard and green no birds are attracted by them. The Black and White Magpie might destroy smaller birds, but would otherwise be useful in keeping down insect-pests of all kinds. The other kinds of Magpies and Starlings would probably become troublesome pests, even if they did not attack green oranges and bananas.

(Copy of letter from a noted Naturalist, and an authority on Magpies and Starlings.)

Clock Face, 14th June, 1906.

SIR,—With regard to Starlings eating fruit, I have known a single elder tree loaded with berries to be cleared in less than three days. To fruit generally, I am not aware they seek to do much damage. Mulberry trees when in fruit suffer greatly. As to their being insectivorous, they are to a great extent, but nothing seems to come amiss to them.

Magpies are destructive among poultry and game, they will come in the early morning and steal the eggs, emptying the contents, besides making great havoc among chickens and young birds. In a game-preserving district, they are not allowed to breed, as they will take anything they can kill, but I am not aware they do a great deal of damage to fruit or other crops, they prey a good deal on the larger insects, slugs and worms, as also do Starlings. The latter do a far greater deal of good in keeping down ground pests than the harm they do to the smaller fruit trees, at least this is our experience. The larger fruit trees I have rarely known them to attack. As to importing them to foreign countries experiments would soon prove their different propensities.

Yours truly, ALFRED P. JACKSON.

Summary of Board of Agriculture Investigation.

On the one hand :—

1.—The Starling feeds principally on worms, snails, chafer larvæ, and beetles, wireworms, surface caterpillars, larvæ of Daddy Longlegs, and many other harmful insects, together with pupæ and eggs.

2.—The Starling is entirely useful on newly ploughed land, and in meadows and pastures.

On the other hand :—

The bird devours or spoils cherries, apples, and pears, and other fruit to a less extent, whilst it is sometimes destructive to seed-wheat.

There is no doubt that Starlings do much harm in the orchards of this country when the fruit is ripening. On the whole, however, the information at present collected goes to show that, in view of their great partiality for insect food, Starlings are, from the forest standpoint, entirely useful, whilst in agriculture and gardening, their usefulness far more than outweighs the occasional harm done.

4, Whitehall Place, London, S.W., October, 1897.

Revised, June, 1905.

BRANCH NOTES.

DESIDERE.—A most interesting meeting was held in connection with this Branch, on Tuesday evening, the 26th June. This special meeting had been arranged for the purpose of saying "good-bye" to Mr. Archibald McKennie, the hard working and energetic Secretary of the Branch, on the eve of his departure from the district, and also for the purpose of giving the members of the Branch and many other well-wishers an opportunity of expressing their grateful appreciation of his past services. The meeting was largely attended. Mr. E. Arnett, the local Instructor, came down in order to take part in the meeting. It was largely through Mr. McKennie's influence that the Branch was started, and from the beginning he has been its Secretary, and any measure of success and usefulness in which the Branch rejoices, is in the main, due to his unflinching

energy and labour. He was also the Secretary of the Savings Bank, which has been established in connection with the Branch—which has been such a success, and has proved itself to be such a help to the people. We only hope that others will be raised up to carry on the good work which has been commenced. The best wishes of all go with Mr. McKenzie into his new sphere. And it is hoped that he will enjoy the same amount of success and usefulness there as he did at Deeside. Mr. James A. Foote was asked to act as Secretary both of the Branch, and also of the Savings Bank for the time being, and Mr. Robert Fairclough was appointed Assistant Secretary. On account of sickness, Mr. Charles Hudson was compelled to resign his position as Treasurer of the Society and the Savings Bank, which he had filled with satisfaction to all from the commencement of the work in the district. It was regretted that Mr. Hudson felt obliged to give up the very important position, and much sympathy was felt for him on account of his long and continued sickness. Mr. B. Cosley was appointed Treasurer for the Branch, and Mr. David Clarke for the Savings Bank. The following address was presented to Mr. McKenzie by the members and well-wishers of the Society, to which he suitably replied. In his reply, he expressed his thankfulness for the constant and valuable assistance he had always received from the members of the Branch, and especially his fellow officers. He spoke in high appreciation of the help and encouragement he had always received from the President, Mr. James A. Foote, and closed by wishing the Society long and continued success.

Hastings, Deeside, 26th June, 1906.

Mr. Archibald McKenzie, Hon. Secretary of the Deeside Branch of the Jamaica Agricultural Society.

SIR,—We, the undersigned officers and members of the Deeside Branch of the Jamaica Agricultural Society, on this the eve of your departure from amongst us, desire hereby to show our heartfelt gratitude for, and, appreciation of your services rendered to this Society.

1.—You have always from its organization, and especially, as its Secretary, been very faithful to the duties incumbent on you, and have always given such advice as necessary for the interest and welfare of the Society, and have always been found at your post at every meeting.

2.—You were elected Secretary of the "Penny Savings Bank," when it was started eleven months ago, in which position you have spared no efforts in bringing it to the high and useful stand which it now occupies. We can assure you that we have lost a friend, a brother, and a counsellor. But in connection with your profession in life as a school-master, and since you have thought it advisable to remove to another district, we would therefore wish you and family a happy and prosperous career in life, and that you may continue the same amount of usefulness in your new sphere.

3.—We are cognisant of the fact that this is the sowing time; may you so continue to sow the seeds of kindness and usefulness, so that you, in your turn, will hear the "well done."

4.—We hereby present to you this purse as a small token of our high appreciation of your valued service. May God bless you and your family. We now say good-bye. With kindest regards,

We remain, yours faithfully,

James A. Foote, President; P. F. Schoburgh, Vice-President; D. Thompson, Vice-President; E. Arnett, Local Instructor; Robert H. D. Chambers, Guy S. Ewen, E. G. Harris, Manah Dalley, Samuel P. Spence, John Davis, Benjamin Cosley, David Clarke, Richard Barrett, J. A. Evans.

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HANOVER.—The quarterly meeting of this Branch was held on Saturday, 18th August, 1906. The President, C. A. Cover, Esq., B.A., occupied the chair. Two districts are without Chairmen, Hopewell, owing to the removal of Mr. Stanhope, Greenland owing to the death of Mr. Robert Watson, J.P. Mr. Watson's death is a loss to the Society as he was most interested in all its affairs. Took up matters dealing with the Show. The financial statement as

prepared, was presented and accepted. It was pointed out that some donations promised had not yet been paid.

Donations		£29	3	6
Entrance Fees, Stock		8	1	0
Gate and Stand		26	19	2
Prizes	£36	14	0	
Expenses,—Ground, etc.	10	3	4	
“ Judges	6	5	3	
Printing	8	12	1	
Postage, etc., Secretary	1	10	0	
Balance in hand	0	19	0	
	£64	3	8	£64 3 8

This was considered satisfactory, and congratulations were offered that the Show had cleared itself. The demonstration in Jippi-Jappa straw-curing and hat-making, arranged for by Messrs. John E. Kerr & Coy., was a great success. Lady Swettenham was much interested and had encouraged the Secretary to endeavour to start classes. It was agreed to ask the Secretary to arrange for a class at Brownsville for a three months course, under the charge of Miss Mabel Shaw, a pupil of Messrs. J. E. Kerr & Coy. It was agreed to enquire if there were other districts where classes might be formed. The Society resolved to thank the Editor of “The Jamaica Times” for the issue of the Lucea Show Number. The following figures were given regarding recent Shows:—

1903	£97	offered in prizes, £50 grant, 1,669 entries.
1904	85	“ No. grant, 1,046 “
1906	45	“ No. grant, 782 “

The 1904 Show had a deficit of £21 15s., but all the prizes awarded were paid. It will be seen that the falling off in entries was greater in 1904 than 1906. At the same time it was admitted that the average quality of exhibits was better. A small committee was appointed to note certain things about the past Show with a view to improve any future Show that may be held. It was reported that there were 191 members in connection with the Society, and that there is a balance of £6 16s. 7d. It was agreed that potatoes and seeds should be obtained for distribution. It was also agreed that the hearty thanks of the Society be given to all the judges for the valuable assistance they gave. A similar vote of thanks was accorded Mr. and Mrs. Cover and the Secretary.—JOHN F. GARTMORE, Sec.

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THOMPSON TOWN—The regular monthly meeting of this Branch came off at the usual place, on Friday, 27th July, 1906. The following members were present: Messrs. J. B. Morrison, J. Bennett, W. McLaren, J. Graham, O. Chambers, R. Saunders, J. Douglas, J. Miles, M. Edwards, R. McDonald, W. Reid, Mrs. S. Davis, Miss M. Thomas, and the Secretary. Visitors: Messrs. W. Cradwick, Travelling Instructor, U. McLaren and Grant, third year students of the Mico College. The minutes of the last meeting were read and confirmed. Correspondence were then dealt with, and the business arising from the minutes of the last meeting. It was decided to hold no more monthly meetings, but once in every two months. Mr. Cradwick helped throughout the meeting, and gave valuable instruction in the picking and curing of coffee. It was decided to hold a Show in connection with the Thompson Town Branch on 20th December, 1906. Three prizes are to be given for each class of exhibits, 1st, 2nd, and 3rd. The following is the proposed Prize List:—Horses, 4s., 2s., 1s. Mules, 4s., 2s., 1s. Donkeys, 4s., 2s., 1s. Dogs, 2s., 1s., 6d. The above classes to be judged for condition only. Coffee, clean, 1s. 6d., 1s., 6d. Cocoa, cured, 1s. 6d., 1s., 6d. Pimento, 1s. 6d., 1s., 6d. Oranges, 1s. 6d., 1s., 6d. Cassava, starch, 1s. 6d., 1s., 6d. Two quarts Sugar, wet, 1s. 6d., 1s., 6d. Yamples, 1s. 6d., 1s., 6d. Vegetable collection, 4s., 2s., 1s. Negro Yams, 1s. 6d., 1s., 6d. Potatoes, Sweet, 1s. 6d., 1s., 6d. Tobacco, 1s. 6d., 1s., 6d. Cane, two, 1s. 6d., 1s., 6d. Plantains, bunch, 1s. 6d., 1s., 6d. Beeswax, 1s. 6d., 1s., 6d. Bananas, 1s. 6d., 1s., 6d. Cocoa, 1s. 6d., 1s., 6d. Cassava, 1s. 6d., 1s., 6d. Corn, 1s. 6d., 1s., 6d. Beans

red, 1 quart, 1s. 6d., 1s., 6d. Copy Books, 1s. 6d., 1s., 6d., to be judged according to Standard, and open only to the Blackwoods, Thompson Town and Smithville Schools. The funds visible are £1 10s. from the Thompson Town Society, £1 3s. 6d. from the S.P.A.J., and 17s. 6d. promised in the meeting.

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ST. PETER'S.—The regular meeting of this Branch was held at Petersfield Schoolroom, on Saturday, 25th August. There were present : Messrs. Jas. T. Turner, President ; W. Cradwick, Travelling Instructor ; James Williams, Vice-President ; J. Edward Simms, Secretary ; W. Leslie, J. Fairclough, Geo. Cunningham, C. E. Thompson, Jas. Petgrave, R. S. James, Jno. A. Tate, R. A. Blake. J. R. Wheatle, Samuel Murray, Francis Nickle, and Mrs. Plummer. On behalf of the members present, the President gave a word of welcome to Mr. Cradwick, who responded in his usual way, and proceeded at once to analyse matters *re* the forthcoming Paradise Show. He pointed out that there would be an alteration in the prize list in the classes for horses and cows. Large proprietors or penkeepers would pay fees and, of course, their prizes would be smaller. No fees at all would be charged to small settlers, that is, persons owning not more than thirty acres of land each. After encouraging the members to do their best to make the Show a successful one, Mr. Cradwick wound up by asking those present to state their ideas about the Show. Mr. Wheatle asked how they would find out the person who had 40, 50, 70 or 100 acres ? Who was going to take the job to find that out ? It was pointed out that the matter would be further considered. Mr. Tate asked where would the prize money be paid, as it entailed much trouble and waste of time to travel all the way to Savanna la-Mar on some other day for the sake of the 2s. or so. Mr. Wheatle then proposed, seconded by Mr. Tate, and carried unanimously : " That this Society urges on the Savanna-la-Mar Society the necessity of paying all small settlers' prizes on the day of the Show, as this Society is strongly of opinion that this would greatly encourage small settlers' exhibitors to compete at the Show by saving them trouble and expense in travelling to Savanna-la-Mar on some other day." Mrs. Plummer here gave her experience on the judging at Shows. She told how it encouraged one to take more care and interest in cultivating his or her crops. She insisted that there should be no partiality in the judging, and no uncalled for remarks, as it tended to cripple the interest of exhibitors and cause many to give up competing at the Show. Messrs Cradwick, Wheatle and Williams spoke, voicing the sentiments of Mrs. Plummer. Mr. Wheatle then proposed, seconded by Mr. Blake, and carried unanimously, " That the Society urges on the Committee of the Paradise Show the necessity of keeping all persons, even the President of the Society, except the judges, the committee man appointed to wait on the judges and the Secretary of the Show, out of the ring, or shed, while judging is going on. This Society trusts that the Committee of the Paradise Show will take every precaution to prevent any but bona fide small settlers exhibiting in the small settlers' class." The Secretary was requested to write to the Secretary of the Parent Society asking what must the members of the St. Peter's Branch do to be entitled to the use of the stallion. It was unanimously agreed that next meeting be held on the 4th Saturday in October. The following paid subscriptions :—Messrs. Senior, Nickle, James, and Mrs. Plummer. The following resolution moved by Mr. J. Edward Simms, and seconded by the President, was unanimously passed at a special meeting of the St. Peter's Branch, Petersfield, Westmoreland, held on the 29th August. Resolved, " That His Excellency the Governor be respectfully asked to reconsider his decision in agreeing to the removal of Mr. Cradwick, Agricultural Instructor, from the Western Parishes, as we know that his past services have been of great benefit to this side of the Island. The cocoa, coffee and vegetable garden industries are, as far as the cultivation of these is concerned in their infancy. Mr. Cradwick by his lectures and demonstrations, has done a good deal to improve the growth of the industries above mentioned, and so it would be a great loss to the parishes if he were to be removed." We therefore pray that Mr. Cradwick's services be retained.

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SANTA CRUZ.—This Branch held a special meeting on the 30th August. Present : Wm. Cradwick, Esq., Revd. S. J. Marson, presiding. Messrs. C. R.

Gregory, Vice-President ; B. A. Birthwright, Treasurer ; W. S. Jones, Assistant Secretary, the Secretary, and twenty members and visitors. After the reading and the confirmation of the minutes of the last meeting, Mr. Cradwick, and the Secretary reported favourably of the Show Grounds, and the Secretary was instructed to convey the appreciation of the officers and members to Jas. Samms, Esq., owner of the Show Grounds, for his generous offer. It was a joy to the Society to know that the S.P.A.J. has offered a guinea to be given in prizes for the best kept working mule and ass. Of this sum, prizes to the amount of eleven shillings were to be given to mules, and ten shillings to asses. This meeting decides to ask members of good standing from the neighbouring Branches, viz., Top Hill, Appleton, and Newmarket, to send exhibits to the Show. The Society will shortly send invitations with Prize List attached to each of the Societies named. To meet the necessary expenses, 40s. will be voted from the Society's fund, while the members agree to subscribe willingly and to use their influence to get donations from friends and others interested in the Society. The decision of the Board of Agriculture *re* Mr. Cradwick's removal from this district, throws a fatal gloom over the Society, and the Secretary was instructed to send the Secretary of the Parent Society a resolution expressing its deep regret to know that Mr. Cradwick is to be removed, the effect that will likely follow his removal, and to ask the Board to reconsider its decision and let him remain with us at least until the Show is over. A vote of thanks to Mr. Cradwick for his much appreciated visit, and his usual genial and suitable reply brought matters to a close. —A. AUG. BLYTHE, Sec.

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TRINITYVILLE. — A special meeting of this Branch was held on Saturday, 28th July. Mr. J. Francis Anderson, presiding, and among those present, was Mr. R. Ehrenstein, principal of the firm of Marchalleck & Company. Mr. Ehrenstein is hon. treasurer of the Society for the Show, and he takes keen interest in the matter. He writes letters broadcast to his many influential friends, and has already collected over ten guineas. Addressing the meeting, Mr. Ehrenstein said he was a merchant, but depended, like all other working people, on agriculture in order to succeed. He had accepted the membership of the Society, and was working hard for the success of the Show—his clerk having written dozens of letters asking for donations. He pointed out that a Show should not be regarded as a place for getting prizes, but as an advertising medium. People should take what they grow to a Show so as to secure purchasers for commodities. He deprecated the idea of a man taking a quart or two of coffee for instance to show, and getting 1st prize, but when asked to supply a certain quantity he either had no more, or if he has, it is of very inferior quality. A resolution was passed at this meeting inviting the Bath Society to co-operate with the Trinityville Society, and have a good parish Show at Serge Island Estate on a date to be fixed later on. At the close of the meeting a vote of thanks, moved by Mr. Grant, and seconded by Mr. Edwards, was unanimously accorded Mr. Ehrenstein for the very valuable help he was rendering the Society, and particularly for leaving his business at Morant Bay, (10 miles off) that afternoon, and coming to address the meeting. Replying, Mr. Ehrenstein said that his greatest pleasure will be to find his efforts bearing fruits by way of interest among the members. He compared himself that afternoon to a farmer, who having sown seeds looked for a crop in return. It is very gratifying to note the interest which nearly all the other gentlemen at Morant Bay are taking in the Society. The Show, we feel sure, will be all the more successful for the postponement, and we hope ere long to be able to fix the date for a record Show. We have the men, we have got the money, we have got the products, and as for the locality for holding the Show, Serge Island Estate is an ideal spot. It is picturesque, central and easy to reach from all points. Show Subscriptions :—Already acknowledged £7 4s., The Atlantic Fruit Company £3 3s., Lascelles, de Mercado £1 1s., Jamaica Tobacco Company £1 1s., A Well-Wisher 10s., 6d., R. B. Hopkins, Esq., 10s. 6d., A. G. Donaldson, 10s. 6d., J. H. Smith 10s. 6d., David Marchalleck 10s. 6d., Jas. Gordon 5s., A Friend 5s., Nathan, Sherlock & Company 10s. 6d., D. Henderson & Company £1 1s., Elder, Dempster & Company, per Mr. Haggart £1 1s., collected by Mr. J. F. Anderson 8s. 3d., collected by the Secretary from Members 12s. J. T. Musson, Esq., 10s. 6d., J. W. McLean, Esq., 10s., H. A. Samms 5s., J. T. Edman 5s. —Total £20 14s. 9d.

FAIR PROSPECT.—This Branch of the Jamaica Agricultural Society held its Show on the 2nd August. As competitions were only confined to members of the Branch in good standing, many of the outside friends and even some of our own members did not show any interest in the matter. At 9 a.m. the waggonette from Port Antonio brought up the musicians, the committee did what they could by way of preparation. Nature favoured us with a bright day, and those who were present had a real jolly time of it. The Show was opened by Mrs. R. H. Elworthy, wife of the President of the Society. F. B. Brown, Esq., L. A. Wales Esq., and K. H. Brooks, Esq., acted as judges. It was a regrettable fact that there was not a single entry in vegetables, only one in tubers (cassava) and only two in cocoa, sugar, etc., (sugar cane). The largest entries, and by far the most attractive competition was in brood mares. Some real fine mares were shown, and as they paraded around the ring, the eyes of every one was attracted thereby. There were only two entries in 1904 colts, but two splendid animals competed. There were also two entries in 1905 colts and two in mules. The goats, in my opinion, were not quite up to the mark. The competition in Pigs was another interesting one. There were two classes, and four lovely pigs in all competed. There were two entries in fowls and the pair that got first prize was really a fine pair of birds. There were two entries in cassava starch. Some fine cassava on the stalk was shown. The cocoanuts exhibited were good. Bread-fruits were fine. Plantains in my opinion not quite up. Bananas very good. The 1st prize winner was a bunch of 12 hands, large fingers, clean fruit. The leaf tobacco shown was also good. Cigars nothing much. Castor oil, bark ropes, coconut oil, foot mat, and a stallion were also shown. A good day's enjoyment was at last brought to a close, and all went home feeling happy in spite of the small gathering.

On Saturday 4th inst. we met in the Society's rooms to hold our monthly meeting and to distribute prizes. The following were present :—L. A. Brown (in the chair), J. Panton, J. W. Munroe, C. G. Street, C. B. Duncan, A. Berry, J. Munroe, Thos. Goffe, J. Thompson, D. Munroe, E. Thompson, H. Lawrence, R. O'Reilly and W. Z. Buckley. The meeting having been opened in the usual way, the minutes of two special meetings and also of last monthly meeting, were read and approved and confirmed accordingly. Wm. Johnson, Blackrock, Priestman's River P.O., was admitted a member of the Society. The distribution of prize money to the several winners was next taken up. In view of the deficiency in the gate money, the committee agreed to reduce the stated prizes on every-thing.

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CENTRAL CORNWALL.—The regular quarterly meeting of this Branch was held at Retrieve, on Friday, 13th July. There were present : W. Cradwick Esq., in the chair, Messrs. J. E. Morris, Joseph Fennell, Henry Reid, Wm. Fennell, Chas. Jackson, W. Plummer, H. Gray, Benjamin, Maxwell, Miss A. Kelly, the Secretary, and some visitors. The plot at Cambridge is started, but is progressing slowly. Mr. J. Ramsey suggested that as the aim of the plot is to instruct the people of the district how to cultivate the soil, a piece of hillside land be taken, as most of the land in the district is made up of hills. The suggestion was good, but late. Mr. Cradwick said what could be done would be to finish the plot at Cambridge and start another at some hillside spot. Mr. Henderson reported that the boar took sick and died. A stencil plate for the Society is secured. The Montpelier Show is fixed for the 28th February, 1907. Lord Ellis has given the use of the grounds free and promised a very liberal subscription. Mr. Bruce who had promised to lecture at the meeting on Savings Banks could not attend on account of some unavoidable circumstances. One of the chief features of the day was the judging and awarding of prizes to members who competed in agricultural products. Whilst every exhibit required commendation, special commendation is due to the fine negro yam exhibited by Mr. J. E. Morris. The prize-winners are as follows :—Mr. Samah Fennell, 1st prize, in cocoa-pods, 1st prize in cocoa-seeds, 2nd prizes for breadfruits, 2nd prizes for coconuts. Mr. J. E. Morris, 1st and 2nd prizes for yams, 2nd prizes for cocoa-pods, 1st prize for bees-wax, 2nd prize for honey. Miss Annie Kelly, 1st prize for bouquet of flowers. Mr. W. P. Atkinson, 2nd prize for oranges, 2nd prize for corn. The following products will be exhibited at the next competition ; 6 cocoa-pods, 1 qt. pimento,

2 breadfruits, negro yams, oranges, grape fruits, 6 ears of corn, bunch of bananas guava jelly, 6 coconuts, 1 quart cocoa-pods. The next meeting will be at Montpelier, 7th September. We sincerely hope the friends at Montpelier will rise to the occasion and help to make things brighten up.

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SPRINGFIELD, St. James.—The postponed annual meeting of this Branch was held at the Kensington Schoolroom, on the 3rd August, 1906. Present: Revd. J. H. Jones, Vice-President, Mr. J. Jacob Irving, Treasurer, P. Haughton Tharpe, Assistant Secretary, and other members of the Society. Owing to the continued illness of Mr. D. H. Smart, the Secretary of the Society, the minutes of the last Executive meeting were not to hand. The 27th July was the proper time for the meeting, but as Mr. Cradwick promised to be present on the 3rd August, the meeting was therefore postponed. The chairman read a letter from Mr. Cradwick, touching his absence, which was much regretted. A lengthy discussion took place with regards to the Society's pig. Mr. Jno. Ellis reported that 2s. per month is not sufficient to keep him. It was therefore moved by Mr. D. N. Henry, seconded by Mr. E. Constantine Perkins, and agreed by all, that Mr. Ellis be empowered to apply to the Treasurer for money to procure additional fodder for the pig—when it is required. With regards to a crawl to keep the pig, it was moved by Mr. Andrew Hall, and seconded by Mr. J. Jacob Irving, that a 3d. per member be given to build a comfortable crawl for the pig. It was also agreed that a letter be written by the Treasurer to Mr. Herman to know at what age the pig will begin to serve. *Re* Penny Bank, the Vice-President will be Treasurer, while J. Jacob Irving, Esq., will be Secretary. A supply of books will soon be ready. At the request of Mr. Daniel Norman Henry, respecting the "Chicago Scandal," the Chairman enlightened those members who were ignorant of the circumstances, and further mentioned that the United States Government had ordered an investigation of all the tinned meats that supply the different markets of the world, and that in future every tin so exported must bear the United States Stamp. On the motion of Mr. Andrew Hall it was agreed that any future postponement of a meeting must be previously announced. On the motion of Mr. D. N. Henry, as the gas that comes from the roots of plants to break up the food in the soil, it was agreed that Mr. Barclay be approached to ask the Island Chemist for the name of such a gas. The Treasurer having read a letter from Mr. Smart to the members present, it was unanimously agreed that a letter of sympathy be sent to him touching his illness for the past three months. After calling the roll the meeting was brought to a close.—P. HAUGHTON THARPE, Asst. Sec.

PRIZE HOLDINGS.

THE judging for St. Ann will begin on 22nd October, and not in November, as stated in a previous page.

SHOWS TO BE HELD.

THE following Shows are arranged:—

- Santa Cruz, 9th November.
- Manchester,—Kendal, 28th November.
- Appleton, 20th December, 1906.
- Savanna-la-Mar, 1st January, 1907.
- Montpelier, 28th February, 1907.
- Christiansburg,—March, 1907.

The Journal

OF THE

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Vol. 10.

OCTOBER 1906.

No. 10.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society, was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 20th September, 1906, at 11.30 a.m. Present :—Hon. Dr. Pringle, Vice-President, presiding ; Hon. H. T. Ronaldson ; Revd. Father Collins ; Messrs. D. Campbell, C. A. T. Fursdon, R. H. Hotchkin, E. W. Muirhead, and the Secretary, John Barclay.

An apology for absence was submitted from Mr. J. R. Williams.

Minutes. The minutes of the previous meeting having been published in the current Journal, were taken as read and confirmed.

Instructors. The Secretary read communication on the subject of Agricultural Instructors as follows :—

1.—Letter from Colonial Secretary's Office :—

No. 7275-3523.

24th August, 1906.

SIR,—I am directed to acknowledge the receipt of your letter, No. 1425 dated 17th inst., containing the recommendations of the conference between the Board of Agriculture and the Instructors Committee of the Jamaica Agricultural Society, held on the 15th inst., relative to the appointment of Agricultural Instructors. In these recommendations His Excellency understands the Jamaica Agricultural Society concur.

2.—In reply, I am to say that the Governor approves of the proposals submitted, and of the employment, from the 1st September, of the Instructors for the five districts defined, viz :—

Mr. Cradwick for No. 1 District, St. Catherine, St. Mary, and Portland, with present salary and allowance.

Mr. Briscoe for No. 2 District, St. Andrew, and St. Thomas, with present salary and allowance.

Mr. Palache for No. 3 District, St. Elizabeth, Manchester, and Lower Clarendon. Salary £250.

Mr. Arnett for No. 4 District, St. Ann, Trelawny, Eastern St. James, and North Clarendon. Salary £300. And an Instructor to be obtained for No. 5 District, Hanover, Westmoreland, and Western St. James. Salary not to exceed £250. These salaries, omitting Messrs. Cradwick and Briscoe, will amount to £800. The amount available being (1) from grant to Agricultural Society £320, (2) from Messrs. Elder, Dempster & Co., £500. There will remain a small balance of £20 available for special services that may from time to time be required.

It is understood that the Instructors give their whole time to their duties, and that no travelling allowances are given in addition to the salaries named.

3.—His Excellency approves of payment of salary being made to Mr. Arnett, as recommended, at the increased rate, from 1st July,

4.—His Excellency also approves of the Instructors being under the control of the Joint Committee of the two Boards, with the exception, of course, Mr. Cradwick and Mr. Briscoe, who are public officers.

I have the honour, etc., (Sgd.) R. W. JOHNSTONE,
Acting Assistant Col. Sec.

After discussion, it was agreed to inform the Governor that the proposed Joint Committee was only meant to control the arrangements for the work as Instructors with a view to prevent overlapping of work, and also to secure general efficiency, but had no relation to the position of Mr. Cradwick and Mr. Briscoe as public officers; and that if the proposed Joint Committee was not approved of, the Board took it that the control of the work of the Instructors remained as before. The Secretary was also instructed to advise the Board of Agriculture of this.

2.—Letter from Mr. Palache accepting the position of Agricultural Instructor for Manchester, St. Elizabeth, and Lower Clarendon, on the alternative arrangement of 13 days a month at £200 a year; and a letter from Mr. Arnett accepting the position of Instructor for St. Ann, Trelawny, Eastern St. James, and North Clarendon, at £300 a year.

3.—Resolutions from Hanover, Appleton, Santa Cruz, Petersfield, and Central Cornwall Branches, protesting against Mr. Cradwick's removal from the Western District, and resolution from Fair Prospect Branch, Portland, appreciative of his transfer. These were tabled.

4.—Letter from the Board of Agriculture as follows :—

No. 181.

Kingston, Jamaica, 14th September, 1906.

The Board of Management of the Jamaica Agricultural Society.

DEAR SIRS,—I am directed by the Board of Agriculture to advise you that they have received a copy of the letter from the Colonial Secretary's Office addressed to you on the subject of Instructors, giving the Governor's approval of the proposals made by the Joint Conference, with the exception, that as Mr. Cradwick and Mr. Briscoe are public officers, His Excellency does not place them under the control of the Joint Committee of the two Boards.

A letter from Mr. Cradwick has also been submitted by the Governor to the Board of Agriculture intimating that his engagements made with local Agricultural Societies and Show Committee will carry him up to 25th March, and that if these are interrupted, it will cause great inconvenience and dissatisfaction to the various parties interested. He also points out that in connection with the Prize Holdings Competition of the Agricultural Society, and the Teachers' Course at Hope in January, he will be in a different District from either his present one, or the one proposed, for at least three months between this and the end of the financial year. He suggests, therefore, that under these circumstances he should be allowed to remain in the Western District until the end of the financial year (which will only be equal to about three months of actual work therein), and that if a new Instructor is secured he could, during this period, take him under his guidance and introduce him to the District, and initiate him in his duties.

The Board is in some difficulty through the wording of the last paragraph of the Governor's letter as to giving its opinion. The members feel that if the Joint Committee proposed had been appointed, it would have been the best body to give advice in the matter; but, in the absence of this Committee, the Board of Agriculture hereby expresses the opinion that much good and important work would evidently be interrupted if the determination to remove

Mr. Cradwick from the Western District were to be carried out forthwith, more especially as no competent person seems likely to be immediately available to take up and carry on the special work initiated and planned. But as the work of Mr. Cradwick is so intimately related to the Branch Societies of the Agricultural Society, this Board feels that nothing should be decided without consulting the Board of Management of that Society, and it is therefore asked to express its opinion on the subject.

While it seems the right thing to carry out the decision of the Conference and remove Mr. Cradwick to the new District, it would also seem unwise to do this so promptly as to throw the work of the Western District into confusion. The Board of Agriculture is therefore of opinion that, on the whole, it would be well to let the change in Mr. Cradwick's District be made at the end of the present financial year, that is to say, on the 31st March, next.

Yours faithfully, JNO. BARCLAY, Sec.

After discussion, Mr. Fursdon proposed, and Mr. Ronaldson seconded, that the recommendation of the Board of Agriculture be agreed to, and this proposal was carried by four to one. The Secretary was directed to inform the Board of Agriculture of this.

5.—Applications in reply to the Secretary's advertisement for an Instructor for the West-end. The Secretary read the applications, and Mr. Campbell proposed, seconded by Mr. Muirhead, that the position be given to Mr. F. deValda, who had been for two weeks acting temporarily in the office, as he had apparently the best training and experience for the position, and to be appointed on probation for 12 months.

Regulations re the Secretary submitted the regulations of
Inspection of Meat. the United States Department of Agriculture governing meat inspection, which had been circulated round the Live Stock Committee, with their comments.

He also submitted the regulations of the Board of Agriculture and Fisheries of the United Kingdom, but as this had not gone round all the Committee he was instructed to continue the circulation, and when it was returned make a digest of both, and print this in the Agricultural Journal.

The Secretary read letters from the Colonial Secretary's Office on the subject of (1) Inspection of Meat, (2) Butchers' License, (3) Duty on Imported Meat as follows :—

7558-7516.

Kingston, 3rd September, 1906.

SIR,—I am directed to acknowledge the receipt of your letter, No. 1238, dated the 20th July last, transmitting copy of a Resolution of the Jamaica Agricultural Society, asking the Government to consider whether in all towns the Parochial Boards should be directed to arrange for the regular inspection of meat.

2.—In reply, I am to state for the information of the Jamaica Agricultural Society, that His Excellency finds on enquiry that there are Inspectors appointed by the Parochial Boards in all but four of the Parishes. The Inspectors of Food are in most cases the Sanitary Inspectors of the Parishes; in Manchester and Clarendon they are the Members of the Board.

3.—It would appear from the annexed Summary that there are but few instances calling for prosecution for the sale of unwholesome meat, and the Governor would be glad to know, having regard to the facts stated in this letter, on what grounds the proposal of the Agricultural Society is based.

I have the honour to be, Sir, your obedient servant,

ROBT. JOHNSTONE, Acting Assistant Col. Sec.

Summary of replies to Circular 7516-06, as to prosecutions in the undermentioned Parishes for selling unwholesome meat during the year, 1905-1906.

Kingston, 7; in districts outside the town 2; 8 convictions, 1 withdrawn. St. Andrew, St. Thomas, Portland, St. Mary, St. Ann, Trelawny, St. James, Hanover

Westmoreland, St. Elizabeth, no cases; Manchester, in town, 3; in districts outside of towns, nil; fined 10s., and costs 2s., or 14 days in each case. Clarendon, in town 1; fined 30s., and 8s. 6d. costs or 30 days hard labour in St. Catherine District Prison; in districts outside the town, nil; St. Catherine no cases.—Total cases in towns 11; in districts outside the town 2.

7847-8549.

Kingston, 14th September, 1906.

SIR,—I am directed to acknowledge the receipt of your letter, dated the 17th ult., and to inform you that the question of introducing regulations for the licensing and registering of *retail butchers* was considered by the Governor in Privy Council on the 11th inst., and that it was decided that the weight of argument was against the proposal of the Jamaica Agricultural Society.

I have the honour to be, Sir, your obedient servant,
ROBT. JOHNSTONE, Acting Assistant Col. Sec.

No. 7846-7494.

Kingston, 14th September, 1906.

SIR,—With reference to the Resolution (1) embodied in your letter No. 1238, dated the 20th July last, I am directed to inform you that the matter was discussed by the Governor in Privy Council on the 11th inst., and that the Council agreed that the *present ad valorem duty on raw meat* was quite high enough.

I have the honour to be, Sir, your obedient servant,
T. LAWRENCE ROXBURGH, Actg. Col. Sec.

With regard to the first, he was instructed to reply that because there had been few prosecutions for selling unwholesome meat, this did not indicate that there were not numerous cases which ought to be prosecuted. That it was a fact well known that animals dying from diseases, some transmissible to man, were commonly killed, and the carcasses sold for human consumption; and to suggest to the Governor that a recommendation be sent to the Parochial Boards, impressing upon them the desirability of establishing slaughter-houses in all the principal towns of the island, so that supervision of the beasts killed might be more easily instituted than at present.

With regard to the Butchers' License and Imported Meat, Mr. Fursdon raised the question of the meat for the hotels being imported free of duty. He said he was aware that on occasions meat supplies for the hotels were admitted free of duty. The Secretary was instructed to write to the Governor, and asking for a return of the fresh meat imported into the island, and the duty paid thereon.

The Secretary submitted letter from Coleyville, Christiana, signed by 45 persons, protesting against the proposed butchers' license, which was tabled.

Visit of Mr. Stockman. The Secretary reported that he had made arrangements for the visit of Mr. Stockman, the Veterinary Surgeon to the Board of Agriculture and Fisheries of the United Kingdom, but that gentleman had not yet come to the island.

International Agricultural Institute. The Secretary submitted the report of the Special Committee on this matter, and he was instructed to reply to the Government, that while the Board considered the objects for which the Institution was created undoubtedly excellent, they did not appear to affect the interests of the island specifically, and that it would be inadvisable to incur any expenditure in connection with the proposal.

Exhibition of Colonial Fruit. The Secretary submitted letter from Barbados, with regard to the Exhibition of Colonial Fruit in London, asking if Jamaica proposed to take part, and could contribute towards the expenditure of £80 or £90 proposed by the West India Committee.

He was instructed to reply that there were no funds available for expenditure in this direction, but that the Secretary had been instructed to proceed as he did at the previous Exhibition, and try to organise private exhibits.

Re Bulls. The following further letters from the Colonial Secretary's Office were submitted.—

1.—*Re* Railway Rates for Oranges.

No. 7265-8582.

Kingston, 24th August, 1906.

SIR,—I am directed to state, for the information of the Jamaica Agricultural Society, that on the recommendation of the Railway Advisory Board, and of the Director of the Railway, the Governor has approved of the present reduction of twenty-five per cent. in the regular freight charges for the conveyance of oranges by train being discontinued for the period from September 1st, to November 30th, 1906, and reverted to after that time.

I have the honour to be, Sir, your obedient servant,
ROBT. JOHNSTONE, Acting Assistant Col. Sec.

2.—*Re* Fruits and Vegetables for Canal Zone.

No. 7538-8859

Kingston, 1st September, 1906.

SIR,—I am directed to transmit to you a copy of a letter from the Private Secretary to the Governor of the Canal Zone (17th August 1906), relative to the desired shipment of fruit and vegetables from Kingston to Colon.

2.—The Governor is anxious to do all that is possible to comply with this request, and would be glad therefore, if you would consider and advise what steps should be taken in the matter.

I have the honour to be, Sir, your obedient servant,
ROBT. JOHNSTONE Acting Assistant Col. Sec.

Ancon, Canal Zone, Isthmus of Panama, 17th August, 1906.

To His Excellency the Governor of Jamaica, Kingston, Jamaica.

EXCELLENCY,—Owing to the high prices and scarcity of vegetables on the Isthmus, I am desirous of securing quantities of fruits and vegetables from Jamaica, if it is possible to ship them.

Will you kindly place this letter in the hands of some large shipper in Jamaica, where goods can be shipped on the steamers coming to Colon, and have them quote me prices on such fruits and vegetables as could be shipped here. I believe the time is 28 hours from Kingston to Colon.

Thanking you in advance for the favor, I am, Sir, etc.,
(Signed), C. H. BAKER, Private Secretary to Governor.

P.S.—Draft to be sent with order for goods.

The Secretary stated he had published the letter in the newspapers for general information, and had submitted the matter to dealers who might undertake to do business. He was directed to do all in his power to promote enterprise in the desired direction.

2.—*Re* Bulls presented by Sir Alfred Jones.

No. 7601-9096.

Kingston, 4th September, 1906.

SIR,—Mr. Haggart, as General Agent in Jamaica for Messrs. Elder, Dempster & Co., intimates that he has received a telegram from Sir Alfred Jones

to the effect that he is sending here by the "Port Kingston," due to arrive this week, two bulls to be presented to the Governor, whom he leaves free to dispose of them as he may see fit.

2.—His Excellency would be obliged if the Board of Management of the Jamaica Agricultural Society would be so good as to advise him, at their early convenience, as to the disposal of these animals, so that they may be utilized to the best advantage.

I have the honour to be, Sir, your obedient servant,
T. LAWRENCE ROXBURGH, Acting Col. Sec.

No. 7658-9186.

Jamaica, 6th September, 1906.

SIR,—I am directed to acknowledge the receipt of your letter, No. 1632, dated the 6th inst., and to approve of the arrangements you have been so good as to make with Mr. J. M. Gibb, V.S., for the inspection, etc., of the two bulls sent out by Sir Alfred Jones, on the arrival of the "Port Kingston" with them this evening. I am to thank you for the prompt assistance you have been so good as to render to the Government in the matter.

2.—The Collector-General has been authorized to have the bulls landed free of Customs Duty.

I have the honour to be, Sir, your obedient servant,
T. LAWRENCE ROXBURGH, Acting Col. Sec.

The Secretary also submitted the following particulars regarding them:—"The bulls were bred by and purchased of the well-known local breeder, Mr. McEwen Smith, of Henbury. One is a beautiful dark red, called 'Henbury Beau,' calved August 24th, last year; and the other is a rich roan, called 'Henbury Favourite,' calved September 20th, last year,"—and stated that he had asked for fuller information regarding their breeding, their pedigrees, and whether they had been bred from a line of milkers.

And the following applications for the use of the bulls as follows:—J. V. Calder, Worthy Park, St. Catherine; A. M. Lewis, Brumalia, Mandeville; and R. L. Young, Tobolski, Brown's Town.

He was directed to reply to the Acting Colonial Secretary that the Board would recommend that the bulls be kept at the veterinary stables in Kingston some time longer, and that further publicity should be given to the fact that the bulls are here so that more applications might be received.

Seville Oranges. The Secretary submitted the following letters from Messrs. P. MacLachlan & Co., and Messrs. Buchanan Bros., Glasgow, *re* seville oranges:—

222, St. Vincent St., Glasgow, 3rd August, 1906.

SIR,—We have pleasure in enclosing copy of letter and offer from Messrs. Buchanan, which we trust you will be able to accept, and confirm to us by an early mail. This firm seems to have taken a deep interest in this experiment, and we hope you will find shippers prepared to reciprocate the encouragement this firm is giving to these trials.

We were pleased to notice in your Journal's July issue a paragraph with regard to what had been done here, and if you are now prepared to make further proposals for the coming season, we shall be pleased to have same, as it would appear, judging from Messrs. Buchanan's letter, that purchases are already being made.

Yours faithfully, PETER MACLACHLAN & Co.

Copy of letter from J. Buchanan & Bros., Limited, Stewart St., Cowcaddens, [28th July, 1906.]

SIR,—We have fixed up our contracts for seville bitter oranges, but have reserved a portion for your Jamaica friends. The price of seville scours has

advanced 1s. per case this season, please, therefore, send them out an offer of 100 barrels *sour* Oranges, 11s. per barrel, c.i.f., Glasgow. Shipment to be made as soon as fruit is ready. An early reply will be esteemed.

(Signed) J. BUCHANAN & BROS., LTD.

P.S.—Net weight of fruit not less than 132lb.

The Secretary stated that on enquiry he found that it would take at least 9s. to land a barrel of seville oranges in Glasgow; that shippers were disinclined to run the risk of consignments arriving in bad condition with so small a margin of profit, but that he would still try to get some further shipping tests made. The matter was left in his hands.

Rubber.

The following correspondence on the subject of tapping rubber trees was submitted:—

Burlington, St. Margaret's Bay P.O., 18th August, 1906.

SIR,—India rubber seems to be a desirable crop to extend in Jamaica. I have at Burlington several trees which I consider are now fit to tap, and if your Society will appoint a responsible man I shall be quite willing to give him all facilities for tapping these trees. You will then have authentic information as to the probable results to be obtained in Jamaica from *Castilloa* trees.

I have trees on limestone and alluvial deposit soils.

I leave it to your expert to choose his own time and method of tapping the trees, all I ask is that a careful report shall be made for guidance to future planters in Jamaica.

An early answer will oblige.

I am, yours truly, HENRY CORK.

Burlington, St. Margaret's Bay P.O., 20th August, 1906.

SIR,—In continuation of my letter to you dated 11th August, I have to inform you that the original tree planted at Burlington was planted in a banana cultivation on limestone formations and is now 7ft. 10in. in circumference at 3ft. above the ground.

A seedling from this tree in the same cultivation, and under the same conditions, is now 5ft. in circumference.

On alluvial soil not under cultivation but planted in woodland, the seedlings from the original tree are now 5ft. and 4ft., respectively, in circumference at 3ft. from the ground.

I am quite prepared to allow your Society to test these four (4) trees, provided it is done in such a manner that would be useful to rubber planters in Jamaica in the future, but I do not propose to allow your expert to run wild over all the rubber trees here.

If your Society does not deem this worth their consideration kindly advise me at an early date.

I am, yours truly, HENRY CORK.

Burlington, St. Margaret's Bay P.O., 25th August, 1906.

SIR,—I am in receipt of your letter No. 1427. You evidently misunderstood my letter. My offer was for a continuous experiment with the trees on any day of the month, and any day of the week, and any hour day or night, which the expert decides it would be best to do so, and that these trees were given to the Government, at my expense, in order to enable them to get correct statistics.

I am, Sir, yours truly, HENRY CORK.

Half-way Tree, 27th August, 1906.

SIR,—I have to thank you for your letter of 30th August, *re* tapping Mr. Cork's rubber trees.

As you are aware I am leaving the island in a few days time. Independently of this, however, the excessively heavy rains of late are unfavourable for tapping. Better to tap when you have little or no rain. Besides, as you are aware, a

single tapping is quite inadequate : only a series of tappings can prove the productive capacity of the plant. The more they are tapped the plants yield more and more. If fine healthy trees are there, there can be no doubt about the forthcoming rubber supply.

Yours truly, ROBT. THOMSON.

Jamaica Agricultural Society's Office, Kingston, 20th August, 1906.

W. Harris, Esq., Acting Director Public Gardens, Kingston.

DEAR MR. HARRIS,—I enclose two letters from Mr. Cork, at Burlington, with regard to tapping his rubber trees. Of course the Society has no one at its disposal who is able to do this, and Mr. Robert Thomson, who has experience, is leaving the island next week. Have you anyone in connection with your Department who knows how to tap, has tapped successfully, and could undertake this work ? Perhaps it would be better to leave it over until Mr. Cradwick is transferred to the district.

Yours faithfully, JNO. BARCLAY, Sec.

Hope Gardens, 23rd August, 1906.

Foreman Taylor could do the tapping, but I cannot spare him as I am short-handed now. It will be better for him to wait until Mr. Cradwick takes up his duties in Portland,

W. HARRIS.

As Mr. Cradwick would not be in the district till April, and as Mr. deValda who had come to the office since these letters were written to act as clerk temporarily had some experience in tapping rubber trees in Colombia, the Secretary was instructed to try to arrange with Mr. Cork for Mr. deValda to carry through the tapping experiments as soon as possible.

Ramie. The Secretary submitted further correspondence from Edward Radclyffe & Co., as regards Ramie, in which they offered to place their process at the disposal of the Society, the only condition being that a royalty be paid him.

The Secretary stated that the German Consul, Mr. Neelmyer, informed him that in his Consular Report from Havana, he saw it stated that a machine was at work there successfully, and he had promised to get the particulars. If there was anything practical in Messrs. Radclyffe & Co.'s proposal, he was quite sure Sir Daniel Morris, who had been in London lately, would keep him informed. The matter was left in the Secretary's hands meantime.

Office Staff. The Secretary submitted a memorandum regarding the office staff, asking for a new Committee to be appointed, called the Office Committee, with whom he could consult regarding matters connected with the working of the office, and Mr. Bertram, Mr. Walcott, Mr. Fursdon, and Mr. Campbell, together with the Vice-Presidents and the Deputy Chairman, were asked to act.

King's Bulls. The Secretary submitted reports regarding the King's Bulls. Mr. Martin reported that the Shorthorn bull "Desmond" was improving and serving cows readily. Mr. Malcolm, at Knockalva, had telegraphed on the 11th inst., that the Hereford bull "Sylvester" was ill, but he immediately got authority to send medicine from Dr. Gibb, and the bull had recovered all right.

Instructors's Repots. Reports from Mr. Palache and Mr. Arnett were submitted, and having been published in the newspapers, and there being no items of importance in them to discuss, were tabled.

New Members. The following new members were elected :—
Messrs. Jno. R. Ernst, Cartago, Costa Rica ; Clement Logan, Government Savings Bank, Kingston ; A. L. Savage, Government Savings Bank, Kingston ; V. W. Gooch, Inspector of Stock, U.F.Co., Guapiles, Costa Rica ; S. J. S. Dillon, Spanish Town.

The meeting adjourned till Thursday, 18th Oct., at 11.30 a.m.

D R A I N A G E.

(Continued from September Journal.)

Principles to be Used in Locating Drains.

1.—*Lay mains in the line of natural drainage.*—This rule refers to mains, not laterals. The natural water-courses are such, not merely because they are of lower elevation than the surrounding ground, and thus take surface wash, but also because the conformation of the subsoil is favourable to underdrainage toward these water courses. By laying mains in the lines of natural drainage, therefore, we work with, and not against, the natural structure of the soil. Of course, it is not necessary to follow the natural water course through all its windings, and often a short cut to the outlet may be made with advantage. But the general principle holds good.

2.—*Laterals should be laid in the line of greatest slope*—It is thought by some that if the drains are laid across the slope, they may intercept the soil-water in its progress to the lower parts of the field, and prevent flooding there. If the drain has not sufficient fall to carry off the water rapidly, the latter will continue in its way through the soil, and the drain fails to do its work. But if plenty of fall is given to the drain, it will carry off the water quickly, and leave room for other little streams to flow through the joints. Usually the water-gradient is steeper than the slope of the land, so that the water will find its way into the drain, provided the drain has sufficient fall to empty itself.

Laterals should be long, and parallel.—In other words, the fewer junctions of laterals with mains and submains, the more economical the system. It is obvious that at a junction both lines of drains are not doing their full duty. Every main or submain will drain a territory 25 to 50 feet on each side of it, and when a lateral on its way to join the main comes within this territory it becomes useless as a drain. Since this loss of duty occurs at every junction, the reason for this rule is at once evident.

Data required for locating Drains.—There are some areas requiring drainage in which the courses of the drains—mains and laterals—are more or less clearly marked by natural water-courses, and by decided slopes towards these courses. In such instances, the

land should be inspected by one familiar with the surface and also with the peculiarities of the subsoil. From this inspection the system of drainage may be decided upon, the general depth of the drains fixed, and the courses of the drains more or less definitely marked. Here, owing to the decisive character of the surface, the eye is a sufficiently accurate instrument. But other areas, more nearly level, having no clearly marked water-courses or slopes, frequently require drainage, and in such cases the eye is not sufficiently reliable. Where the fall is slight and the whole surface nearly level or gently rolling, a levelling instrument of some kind must be used to secure good results.

Levelling.—Levelling, by whatever instrument it is done, consists in finding how much one point is higher or lower than another. It is done by running a *level line*, which is the continuation of a line of sight given by a *levelling instrument*, and finding on a *levelling rod* the elevation of this line of sight above certain points at the ground surface.

Levelling Instruments.

There are various kinds of levelling instruments used from the plain straight edge with a carpenter's level set on it, to the delicate and sensitive telescope level. The kind that should be used will depend upon the class of work to be done. For some work, where there is plenty of fall and where great accuracy in determining the difference in levels along the course of a drain is not essential, the commoner forms of level will suffice. But for work of any difficulty and magnitude, it is good economy to secure the use of an accurate instrument, so that no mistake may be made in laying the tile to the proper grade. The need for accuracy in grading drains is not always rightly appreciated.

For short distances with plenty of fall, levels may be determined by means of a straight edge, 10 or 12 feet long, set on cross sticks and levelled with the aid of a spirit level. By sighting along this edge to a rod a short distance away, the distance of level between the two points may be got. This method is slow if long distances are to be levelled, and not accurate enough for nearly level land. A better method is to mount 'sights' on the spirit level, and to provide the spirit level with some kind of tripod support. A third kind is the water level, made of an iron or tin pipe about 4 feet long, turned up at the ends and supported at the centre by a rod sharpened to a point at the lower end. Glass tubes are fitted to the ends of the pipe and the whole nearly filled with coloured water. The support being driven into the ground, the water surface in the glass tubes will be on the same level, and by sighting across these surfaces the level may be determined.

All these methods are suited only to short distances, and if a long course is to be levelled, the operation must be repeated so often that for large areas the work is very slow. Besides, very accurate work is not possible by these methods. For really accurate work some form of telescope instrument is necessary.

The Levelling Rod.—The levelling rod is a straight rod or pole on which the elevation of any point is read by sighting along the

level line furnished by the levelling instrument. Any rod divided into feet and tenths of a foot, will do for this work. The intersection of the line of sight with the rod may be determined by the rodman adjusting a narrow black band fitted to the rod, according to signals given by the man at the level. The position of the band on the rod is then observed and noted in the field book. With a telescope level the observer himself can read the number on the rod without the use of the adjustable band. Having read the elevation of the line of sight above the ground at one station, the observer signals to the rodman to proceed to another station in the same course on the opposite side of the observer and the same line of sight is extended in the opposite direction till it meets the rod at the second station, and a second reading is obtained. The difference in these readings is the difference in level between the two stations. By repeating this process, the relative elevations of all points desired may be obtained.

Fixing the Grade of Drains.—It will now be assumed that by some means, whether by the eye or by systematic levelling with an instrument, the courses of the various drains have been decided upon. It remains to use proper methods whereby first, the grade or slope of the drain is fixed, and secondly, that grade may be correctly carried out from start to finish. First, to fix the grade. To do this, the total fall from the head to the outlet of the drain must be known. If the slope of the ground is uniform over this course, it is enough to know the total fall, and this may be divided proportionately to each hundred feet in length. A uniform grade, of course, is the simplest and should be carried out where practicable. Suppose that the length of the proposed drain is 300 feet and that the total fall from head to outlet is 12 inches, that will allow a fall of 4 inches per 100 feet. But where the surface of the ground changes in slope it is sometimes necessary to change the grade of the drain to suit, in order to avoid going too deep through a ridge or too shallow through a depression in the field. Where a change of grade is necessary the grade should, if possible, become steeper toward the outlet.

Having found the total fall and total length of a proposed drain, the one in charge should divide this into sections of 100 feet, either equally, the grade of the ditch is to be uniform, or say 3 inches per 100 feet for the first part of the drain, and 4 inches for the latter part, if the grade has to be changed. Then, at intervals of 100 feet, stakes should be driven along the course of the drain, having notches cut in one side. These stakes should be driven into the ground until the notch in each is 5 feet above the bottom of the proposed ditch. By tacking a strip horizontally across each stake just at the edge of the notch and sighting along these strips, the observer should see that the strips are in line.

The guide stakes being now set, a stout cord 120 feet in length or more should be procured, and to each end a short guy stake attached. These guy stakes are driven into the ground, each one beyond one of a pair of adjacent guide stakes, so that the cord passes over the notches and is drawn taut. If the cord sags, it

should be supported at the middle by another stake. Next, a stick with a cross-bar is procured, with a length of 5 feet from the foot of the stake to the top of the cross-bar. With the proper tools, all is now ready to begin digging.

The digging of the drain should begin at the outlet. A skilful drainer will minimise the amount of digging by having a narrow ditch, with sides tapering to a bottom just wide enough for the tile. As the bottom of the ditch is neared, the 5 foot stick with the cross-bar is used as a guide for securing the exact depth, the bottom of the ditch being scooped out until the top of the cross-bar just touches the cord when the foot of the stake is at the ditch bottom, the stake being held exactly vertical. When the first 100 feet has been dug and graded, the cord may be shifted to the next hundred, and so on.

The Grade necessary for Drains.—It frequently happens that lands requiring drainage are level or nearly so, and the fall that can be given will be slight at the best. The question then becomes, what is the least fall with which a drain can work. In drains that are nearly level, the water finds its own head by 'piling up' at the upper blind end of the drain, thus standing at a greater depth in the drain from the outlet backward. For nearly level drains a larger tile should be used, since the capacity of the tile in this instance is lessened by the water standing in it. The only rules that can be given where the fall is slight are to secure as much fall as possible, to make the grade perfectly uniform, and to lay the tile very carefully so as to have no unevenness in the bed over which the water flows. Then, of course, the actual fall of the ground surface, if slight, can be increased for the ditch grade by deepening the ditch toward the outlet.

THE GOOD DAIRY COW.

THE amount of interest in milch cows in Jamaica now is phenomenal, and we receive abundance of requests to tell people how they will be able to know whether a cow or heifer will be a good milker. In a country where most cows are of beef breeds, it is nearly impossible to tell for certain whether any heifer will turn out a good milker, but when they are mixed with dairy blood it sometimes may be done.

There are no external signs by which one can tell exactly the milking capacity of any cow, but the following, given by a New Zealand paper, summarizes very well the points which are generally admitted to indicate typical dairy qualities :—

"The best cow, as a rule, is one of medium size and small in the bone. The head is small and rather long, narrow between the horns, and having a good width between the eyes. The ears should be thin and covered with silky hair, the inside being an orange color. The eyes should be large and bright. The neck long and thin, thickening as it reaches the shoulder, but should be free from

anything like a beefy appearance. The shoulders should meet narrow at the top, the ribs should be straight and wide, indicating a good digestion and constitution, for almost everything depends on that in a good milker. The loins should be broad, and the hips high and wide, and the pelvis wide, giving plenty of room for the udder; the thighs should be thin. The milk veins in front of the udder are usually a good sign in a good cow, and the larger they are the better indication. The udder should be covered with a short downy coat of hair. This hair should begin to turn its backward course from the front teats running in this direction between the teats, then on the back part of the udder, called the escutcheon, and on as far as the vulva in the best cows. The wider the belt of this upturned hair the better. The shape and size of the udder is far and away the most reliable point. It is far better to have a scraggy-looking cow with a good udder, than a good-looking one with a poor udder. As a rule, heavy milkers are seldom the best looking cows. The ideal udder is the one which is well developed both front and back, and is carried high up towards the escutcheon, and at the same time goes well forward along the belly. It should be deep and square in shape. Animals possessing udders of this kind may always be counted on to prove good reliable milkers. Another good sign is to secure cows that have good appetites. Experience has clearly proved that nearly all the best of milkers are good feeders. Of course some cows are simply gluttons, and will consume more food than is sufficient for two ordinary animals. This sign must, of course, be taken in connection with other points already mentioned, and it will be found one of the most important."

P O I S O N S.

It is a curious fact that some animals are immune to poisons that are deadly to others.

Poultry, for instance, can take *nux vomica* with impunity, and this remedy is used in some countries to kill hawks. The chickens are fed with small quantities of *nux vomica* (strychnine) which their systems absorb. Any hawk that kills and eats a chicken so charged with poison is immediately poisoned and dies.

Pigs can also absorb strychnine (*nux vomica*) with impunity.

Arsenic, so fatal to most animals is a good tonic for dogs, and a man who once gave a dose of arsenic to a dog to kill him found him all right in the morning, and on increasing the dose found the dog still well. Strong daily doses acted so tonically that the dog grew fat and sleek. Don't try to poison a dog with arsenic, or it will take a large dose to have any effect, so you can use this poison for rats and keep your dogs safe, as we do. We are trying to get rid of chicken-hawks by the poison method as they are too shy of guns, and hope to report success.

PINE-APPLES.

THE following article from the "Hawaiian Agriculturist" shows the great difficulties growers of pine-apples there have to contend with, and yet they are making a comparative success of it, and have resolved to go in even more for the cultivation. The climate and the soils of Hawaii are not unlike those of Jamaica. What Jamaica produces in the way of pine-apples is a comparative trifle, yet we have few of the difficulties the Hawaiian growers have to meet. They talk of the great distance they are from the mainland,—our markets are nearer; and the remoteness of many of their plantations from rail and wharf, while the most profitable place in Jamaica for pine-apples, St Andrew, is close to Kingston harbour. They speak of the necessity of combination to safe-guard their interests,—that is what is necessary in Jamaica, not alone in pine-apples, but for all our other fruits, including bananas. Fruit-growers are entirely at the mercy of buyers' combinations, shippers' combinations, sellers' combinations abroad, the producers are the only people in the whole business who do not combine.

We commend the careful perusal of this article to all fruit-growers, especially that part about "The merging of all spirit of rivalry and jealousy into one uniform and equitable policy, embracing the good of the whole" :—

"The cultivation of pine-apples on these Islands as a commercial venture has probably been in progress for a period of about fifteen years. The last five years have seen a very great development of the acreage under cultivation for this purpose, and indications point to the fact that the next few years will witness an even greater extension of the industry.

The difficulties which face Hawaiian growers of agricultural products destined for disposal on the Mainland, are unusual, and are chiefly attendant upon the vast distance of their market, and also upon the remoteness of many of the plantations from rail and wharf.

Hitherto the method of marketing Hawaiian pine-apples, and in fact the system which is in use to-day, is for each individual grower to consign his produce to some Mainland agent to be sold there upon commission. The result of this is to bring each consignor into direct competition in the Coast market with his fellow-growers, with the effect that prices are at times depreciated below the actual cost of production, and in some cases have fallen so low as not even to be sufficient to defray excessive freight charges.

Not less disastrous to the realization of a profitable return is it that at times the simultaneous arrival of large shipments of fruit from different producers has so overstocked the market, that a large proportion of it has been unable to be disposed of at any price, and has thus become an entire loss. After such a "glut" a period has often followed when a Hawaiian pine-apple was unprocurable

upon the Mainland, and could the shipments have been arranged to arrive at different times, good prices would have been secured for all.

With the increased output of pine-apples for this Territory which is now anticipated, the difficulties facing the growers will be greatly accentuated, and it is believed by earnest observers that the success and the existence of many of the plantations depend upon immediate provision being made to obtain more favourable marketing facilities. The condition of affairs is deemed urgent, and unless steps are taken to ameliorate the situation it will become crucial upon the maturity of the present season's crop.

The quantity of Hawaiian pine-apples disposed of in Mainland markets till now has been small compared with that received from Singapore, the West Indies, Florida and other countries.

Hitherto the island growers have been unable to effect an organization to safeguard their interests, although in past years attempts have been made to unite them. However, the time is now opportune, and circumstances demand that if the industry is to be established upon a profitable basis, a co-operation must be formed upon lines similar to those under which the fruit-growers of California are so successfully organized. While the system in beneficial operation in California has become in the course of a few years very far-reaching and to some extent complex, it is uncertain that such an elaborately conducted plan could at first be adopted by the Hawaiian growers. With as many interests involved as growers represented, it would be probably be some time before that mutual confidence, which is the keynote of success in such an undertaking, could be developed. The merging of all spirit of rivalry and jealousy into one uniform and equitable policy embracing the good of the whole must be appreciated and fostered before the full utility of the co-operation could be developed.

It, therefore, would seem expedient to endeavour to ascertain a common ground upon which all our Hawaiian pine-apple growers would unite for the common good. With an agreement in operation between them, formulated upon even one point of interest, it would not be long before the accruing benefits were such that the agreement would be widened until it embraced as successful a field of enterprise as that covered by the well-known Californian organization.

As in every other industry the present position of agriculture has been attained only by patient and continual effort, and each success has been possible only by the accumulated experience of the past. The success of agriculture to-day is, however, chiefly due to the availability of only a part of the record, for, as a general rule, it has only been the result of successful experiment which has been preserved. It is to be regretted that as extensive and comprehensive an account of past failures and only partial successes of experimenters is not available. Were such knowledge disseminated

we should be in a position to weigh the possibilities and probabilities of the success of new undertakings under the enlightenment of the whole record, and should not so often see the same blunders perpetuated and the same impossibilities attempted by each generation of agriculturists. We would therefore urge the same patient observance and the same perseverance to record cases of failure as has hitherto been given to those of success. In examining the causes of failure and endeavouring to overcome them, the road to success may generally be determined. It is, however, of the utmost importance that the whole of the attendant circumstances of failure be critically viewed, for, if this be not done with intelligence and exactness, the bare record of a failure is calculated to have a far greater and more harmful effect than if the result of the experiment had been allowed to go unnoticed. Man is too prone to be influenced by discouraging statements, and too often in the past the sweeping announcement of the impossibility of attempting certain lines of agriculture has been sufficient to deter their attempt for many decades. Very often such gratuitous dicta are founded upon single experiments conducted by individuals unlearned in the first essentials of agriculture and under such conditions that signal failure was assured. The cultivation of many valuable plants is to-day pronounced impossible in Hawaii, and many such cases will occur to all our readers. For our own part we believe emphatically that there are very few fruit or flower producing plants of economic importance which cannot be grown as successfully in Hawaii as elsewhere. In every attempt at growing a plant exotic to these islands the first essential is the selection of a suitable habitat with regard to such provision as altitude, rainfall, atmospheric humidity, and soil constituents, and in none of the hitherto recorded failures, which has been brought to our notice, has due respect been paid to all of these.

ORANGE TREES.

THE question of the best system of treatment to be adopted in growing orange trees in Jamaica is not a settled matter in theory or practice. Every grower has his own ideas. The "up-to-date" man who takes a pride in being well informed of what is done in other orange-growing countries, and is energetic, believes in clean culture and acts up to his belief. Another who is impressed by the *apparent* hardness of the wild seedling, with never anything done for it, leaves his trees alone. Still another, who believes in economy of production, works the land between his trees in small crops, or even lets it to tenants. So long as the catch or ground crops, potatoes, cassava and cocones are kept sufficiently clear of the trees, this is good—but tenants!—it is cruelty to the trees to trust them to the mercy of cutlass and hoe, combined with ignorance and carelessness. Another keeps a circle clear a little

beyond the radius of this trees and grows grass between: this is the most common system, and is quite good. It has had good results. We are inclined to the belief that, where we have so many root pests in the earth, the less the roots are troubled after the trees are established the better. We have known clean, firm, fine fruit come off trees grown in sod. Although not in accordance with high ideas of clean cultivation, still in Manchester, there are some groves, with large spreading, healthy, heavy-bearing, budded trees clean above, and untroubled with fiddler beetles below, and the practice, besides cleaning tall weeds and grass out when they get too evident, has only been to run a herd of young pigs among the trees. These search all through the ground diligently and clear out every grub in the soil; they rub against the stems of the trees to scratch themselves, and effectively keep them clear of moss and lichen. They do comparatively little damage to the roots, and although the ground looks untidy, the soil is easily smoothed down. The pigs are generally kept in the grove all the time, but it would probably be better for the trees if they were only in from crop time, say August, on to the blossoming, say January. Probably a judicious combination of all practices would be best.

There is no root-rot where pigs are kept in orange groves—so it is reported,—and we can quite well conceive this to be so. We are told by buyers, who have bought fruit in the districts for a score of years, that in the Red Hills and the Port Royal Mountains districts, of St. Andrew, the oranges have greatly deteriorated in size of late years, and that scores of trees are gradually dying out, while there are few young seedling trees coming up, and few being planted by settlers. An agricultural enquiry should be made into this.

In all heavy soils root-rot is very prevalent, especially in trees planted by man as distinct from self-grown seedlings, as in too many cases, the young trees have been planted too deep. As regards budded fruit, we do not think the kind of stock has much to do with resistance to disease in Jamaica. Seville is the most common stock, by far, followed by seville-sweet, hog-shaddock, rough lemon and grapefruit. The rough lemon is the quickest grower, but is not so well adapted for the lowlands as the others, while it is best for the higher altitudes. Those who say that budded fruit is delicate and blame it for every trouble that happens, do not pause to think over their arguments. They have spent some money on the budded trees; they probably never planted a tree before; they suppose that wild seedlings do not die out or have any troubles, and altogether accept ideas without logic. They do not stop to think that the budded trees are all on seedling stocks, mostly seville, and that the dying out comes mostly from the roots, not the tops. Is it not plain that if trees that never have been transplanted (wild seedlings which have proved by selection all the good spots to grow on) do not die out in numbers, while transplanted trees do, the fault is in the transplanting, and the soil chosen by

the owner, where, probably, no wild orange trees were growing. But it is not true all the same, that self-grown seedlings do not die out. As we have said, scores, yes, hundreds, are dying in every parish every year, while those sweet seedlings that have been badly transplanted are less resistant to troubles than budded trees on seville stocks. □

The following extracts from an article in the "Cape Agricultural Journal" on Root-rot in Orange Trees are very interesting. The means of prevention recommended are just what is done here by intelligent growers, viz., the opening up of the necks of the trees. The letting in of sunlight to the trees is just what we are always insisting on :—

"To my mind it seems positively wicked to calmly allow the grand old Orange groves to perish, seeing there is neither necessity nor reason why they should, if one will only believe in the efficacy of the remedy.

There is no finer sight in the world than a mature citrus grove, and nothing that takes a longer time to produce. I do not believe there is one man who would deliberately and wilfully murder his grove—nevertheless murder it becomes from inability to rightly apply knowledge.

As several old groves that have escaped the ravages of root-rot in the past, are now rapidly succumbing to it, moreover as it seems to be the general opinion of the owners that root-rot is like a relentless fate that at last has singled them out for devastation, so I feel impelled to write again, and say that if he who still believes root-rot is doom to citrus trees, will study the following lines, he will be a happier, and, I hope, a wiser man from perusing them.

To bring theory into actual practice, the intellect must be appealed to, and for this reason I will briefly show why some trees are able to resist root-rot, while others seemingly more resistant, fail.

It is said by many that the common lemon is more resistant than the common Seedling Orange, and that the Pamplemous (Shaddock) and Seville are perfectly resistant to this disease.

On the hypothesis that where there is smoke there is fire, this statement may be said to be correct in practice, nevertheless it is only a partial truth, as any citrus tree will contract the disease, but some easier than others.

Taking the Pamplemous as offering in my opinion the highest resistancy to root-rot, we find its root-system adapted by nature for close compact loams, with a corresponding breathing system in leaf and branch, showing that the natural habitat, and the best results of the Pampelemous, can only be obtained in a situation having ample and continuous moisture in perpetuity.

Its root system has but few surface feeders, the latter are thick and short ; indicating its natural untrained root disposition to be a heavy rich loam with all its feeding close by. Its breeding system and its love of continuous moisture is proved

by the contour of the tree as well as in the gross texture of its leaves and the character of their translucent pittings.

The *Seville* on the other hand is nearer the common seedling Orange. Its root-system is built for more open ground being of a more rambling or 'pushing' disposition; and will flourish on less moisture than the Pamplamous.

Its roots extend outwards, cover a greater feeding area, are finer at the rootlets and contain many more laterals, all indicative of more open ground, whilst its leaf system in many instances is but little coarser than the common seedling Orange. Its greater resistancy to root-rot, lies in the simple fact that it retains much of its natural hardness, not having been weakened and softened by long years of selection, with *fruit* as the primary consideration.

The '*Seedling*' Orange is essentially a tree the outcome of selection and culture. Its existing mixed root-formation has been imparted to it by long training of climate, soil, and selection for *fruit* until its root-character has become definitely fixed in the seed itself.

Whilst it is very similar to its possible originator (the *Seville*) in many features, it has gained in perfection but lost in stamina, more particularly in its root system. It is invariably selected for its fruiting capacities, with branches to carry them to perfection, thus we find dense foliage, whilst the *grower* demands low-down branches for *shade*.

The *Common Lemon*, so far as concerns its mixed root-system, is far more liable to contract root-rot than any of the three trees before mentioned, but it has great compensating feature, which under natural conditions often places it on a par with the *Seville*, and certainly ahead of the '*Seedling*' Orange as a resistant *tree*, but I say nothing as concerns a resistant *stock*.

This statement therefore opens up the whole question of *What is the cause of root-rot?* because if the roots of the common Lemon are more susceptible to root-rot than the roots of the Seedling Orange, it stands to reason that if the latter contracts the disease and the lemon escapes, there must be some very simple explanation forthcoming, not only as determining the immunity of the lesser resistant tree, but for the actual cause of the disease itself.

Now I take it that all orange-growers are acquainted with root-rot, and for purposes of proving my point, I conclude also that every advanced grower to-day knows both prevention and cure. *Prevention* being the avoidance of deep planting, and water-logging the ground, as well as to keep the water away from the collar of the tree. *Cure* being to open up both collar and roots to the sun and air.

If then the cure consists of, practically, sun and air,—or to be more precise, *sun only*, because I think most growers will concede that any Orange-grove having *sun* must necessarily have *air*—then it follows that the *cause* of the disease must originate by its antipode, namely, the *absence* of sun, or, in other words, *shade* and *moisture*.

It is well known throughout the world that the greatest remedy for mycological, or rotting diseases, is direct sun-light; inversely therefore, the originating cause must necessarily lie in the absence of sun.

The resistancy of the common Lemon to root-rot is thus found to lie in the simple fact, that its more open habit allows the sun's rays to percolate through its foliage on to its collar and trunk, which the denser foliage of the 'Seedling' does not admit of.

There is another additional factor, but as it is more of scientific interest than of practical utility I think may be omitted.

Long acquaintance with root-rot proves that the Seedling Orange succumbs more readily than the Lemon; which is because the greed of man too often studies nature only to obtain her financial benefit; the Lemon on the other hand, not being such a financial success as the Orange is not taken such *care* of! The Lemon, therefore, has the reputation of being more resistant to the disease, because man does not kill it by care; financial considerations frequently overlooking the laws of nature.

To prove my point, and induce belief:—If any grower knows of a tree whose bottom branches had been cut away to a height equalling their spread outwards from the trunk, which was not watered round the stem of the tree—and on the collar of which the sun could shine at morning or afternoon—that perished from root-rot, I am prepared to admit that root-rot is my master, and I know nothing whatever of the cause of the 'disease.'

On the other hand, if any grower now suffering, whose trees are not actually dead, but which have, on one side or the other of them, one inch of sound bark upwards from the collar, I say, if he will cut away the bottom branches in an intelligent manner to a height equal to their length, using neither chemicals nor anti-septics, but allow the sun only to effect the cure, he will not only cure root-rot, but will have the satisfaction of proving the originating causes, namely, shade and moisture.

When the wounds have dried up, daub thick white-lead paint over the exposed *wood*, to keep the *wood* from decay."

RUBBER-GROWING.

THE following information was prepared by Mr. J. C. Moore, Agricultural Superintendent, St. Lucia, and issued as a leaflet for distribution in that island. The information exactly suits Jamaica also, and is recommended to be followed here:—

"The demand for rubber in connexion with various manufactures appears to be growing so rapidly that the establishment of rubber plantations in the countries adapted to its cultivation is receiving much attention from planters and capitalists.

The few plantations, established about twelve to fifteen years ago in different parts of the world, are now reaping the benefit of the present high prices for rubber; and as the result of having the trees in plantation form, instead of scattered about in forests, as in

the natural state, the owners are able to collect and prepare the rubber at a minimum cost, and also to place on the market a superior article.

The attention of planters is invited to the possibilities of rubber growing here, where there is an abundance of land suited to its cultivation, and there appears to be every prospect of such an industry proving remunerative.

The successful cultivation of Central American rubber trees under plantation conditions, and the production from them of a very good quality of marketable rubber, have been experimentally demonstrated in the island.

The Tree to Plant.—Of the many rubber producing plants, the three most important sources of commercial rubber are :—Para rubber (*Hevea brasiliensis*), Central American rubber (*Castilloa elastica*), and West African rubber (*Funtumia elastica*). The *Castilloa elastica* was introduced into St. Lucia about eighteen years ago. It has been successfully cultivated on a few estates during the last twelve years, and is the kind now recommended to the notice of planters for extended cultivation, either in separate plantations, or as a permanent shade tree in cacao fields, for which it has proved itself suitable.

Soil and Climate.—The *Castilloa* requires a warm, humid climate, a good annual rainfall, averaging not less than about 70 inches, and a deep, rich soil ; in fact, the land most suitable for growing cacao may be regarded as suitable for this rubber tree. It is not desirable to plant above an altitude of 1,500 feet, and in selecting situations preference should be given to alluvial soils in valleys, or rich, deep soils on the slopes of the lower ridges. Although plenty of water and a humid atmosphere are required by this tree, the greatest care should be taken to secure good drainage, either natural or artificial, at the roots, as anything approaching a swampy condition is most detrimental to the growth of the tree.

Shelter.—A plantation should not be open to the full force of strong wind, and if natural protection in the form of forest belts or ridges cannot be secured, it would be necessary to regard the planting of suitable wind-breaks as one of the first operations in establishing a plantation.

Shade.—While the tree benefits by shelter from very strong winds, it does not appear to suffer from occasional winds of moderate force, and on this account is very suitable for planting amongst cacao as a sun shade, and to deflect winds, which, after being lifted above the cacao field by a good shelter-belt, are liable to strike the cacao tree at some distance from the belt unless kept above by trees such as the Immortel and rubber. Although shade is not required for the *Castilloa* as a tree, it is necessary while the plant is young, and in this respect *Castilloa* thrives well under conditions similar to those obtaining in young cacao fields, where bananas, pigeon peas

tannias, etc., are used as temporary shade. The *Castilloa* does not appear to require shade from the sun after it reaches a height of about 8 to 10 feet.

Planting.—Three or four seeds may be sown in nicely prepared vegetable soil at each place where a tree is required, and the seedling subsequently thinned out to one plant. This plan is not, however, recommended, since much better results will be secured by planting out young plants from bamboo pots or boxes, as the plants raised under nursery conditions are stronger, grow more rapidly, and soon become established in the plantation. At each plant station, holes about 2 feet in diameter and 18 inches deep should be opened and the bottom loosened with a fork and left to 'weather' for a week or two, and then filled in with surface soil to a height of about 6 inches above the general level. One plant should then be planted in the centre of each station, and in doing so care should be taken to transfer from the pots or boxes as much soil with the plant as possible, in order to avoid disturbing the roots too much. The same precaution should be taken in removing plants from nursery beds to the field, and before removing them from the nursery bed or pots the soil should be well wetted. After the plant is placed in position, the soil drawn over the roots should be firmly pressed with the hand or feet, to make the plant secure and bring the soil in close contact with the roots, but at the same time care should be taken to avoid making the soil hard by too much pressure. If the soil is not very rich, the plants will be greatly benefitted by mixing a handful of bone meal with the soil when planting. Planting operations should, if possible, be carried out in cloudy or rainy weather, preferably between the months of June and October. If a spell of dry weather should immediately succeed planting, precaution should be taken to prevent the plants suffering from want of water, a light covering of trash on the soil around the plants will be very useful for this purpose.

Distance to Plant.—If planted as shade trees through cacao, a distance of 40 to 50 feet apart will probably be found close enough. The former distance will give twenty-seven trees to the acre, and the latter seventeen. In separate plantations, devoted entirely to this tree, the distance at which they should finally stand should not be less than 20 feet apart each way. They may either be planted at this distance at the outset or be put out at 10 feet by 10 feet with the object of thinning out the trees to 20 feet by 20 feet about the ninth year, after they have been tapped once or twice. The advocates of the latter system claim that the cost of weeding is thereby reduced and that a greater yield of rubber is obtained per acre in the first year's tapping. The objections to this system are that the trees left after the thinning, are likely to be inferior in size and rubber-yielding qualities as compared with others of a similar age, but which had been planted at 20 by 20 feet, and as the result, would have developed more rapidly and perfectly, and also be likely to yield more rubber per tree in the first few years of

tapping than would be obtained from those left after thinning a close-planted plantation. The question as to which system would eventually be the more remunerative can only be settled satisfactorily by carefully conducted experiments. The best results will, do doubt, be obtained where it is possible to cultivate annual catch crops between the trees, planted at the wider distance. This is the plan recommended.

Raising Plants.—The *Castilloa* trees in St. Lucia produce seeds between April and June, [same in Jamaica.—Ed.] If large quantities of seed are required, it is necessary to gather the red-coloured fruits from the branches as soon as ripe, as birds will, unless prevented, carry away a great many, and only a portion of the crop will be obtained if only the seeds which fall to the ground are gathered. The seeds do not long retain their vitality, and on this account it is advisable to sow them when freshly gathered. Should it be desirable to keep them for a few days, they may, after being removed from the pulp of the fruit, be washed and dried quickly in the shade, be mixed with some nearly dry soil or slightly damp, powdered charcoal, and stored in a dry place. The seeds when fresh take about sixteen days to germinate; they should be sown at least two inches apart and half inch deep in well-drained nursery beds of fine rich soil or in boxes. If the plants are to remain more than a few weeks in the boxes or beds, the seeds should be sown farther apart. The seed-boxes or beds must be suitably shaded from the sun and the soil kept moist but not wet. As the seedlings get to be a few inches high, the shade should be gradually lessened but not entirely removed. In this way the plants will be gradually hardened for the more exposed situations in the field. The plants may, when about one foot high, be planted out in the fields; but stronger ones will be obtained by transplanting the smaller seedlings into bamboo pots and growing them in the nursery until about two feet high."

THE CULTIVATION OF CACAO.

THE following article on the cultivation of cacao in Ceylon taken from the "Tropical Agriculturist" should be interesting and instructive to us here:—

"It is a matter of common knowledge that the value of Ceylon cacao has, during the last few years, fallen considerably, and had it not been found that this product could be profitably cultivated as a permanent intercrop with Para and *Castilloa* rubber, the industry would in all probability have remained stationary. While the value of Ceylon cacao has recently shown a decline, that of many other countries has not done so, and judging from the numerous local applications regarding the varieties to be selected, the suitability of each kind in conjunction with rubber, and other matters, it appears necessary to consider our position and see what improvements are

possible. In the Matala, Kurunegala, Dumbara and other districts, the combined cultivation—cacao and rubber—is rapidly extending, and seems likely to prove a very remunerative one.

Since the ravages of the disease or diseases affecting the stems and pods first became prominent in Ceylon, there has been a tendency to replace the old Criollo or Caracas variety with the more prolific varieties of Forastero and Amelonado, in the belief that the latter was not as liable to the ravages of parasitic fungi. Now, however, the planters are beginning to realize that all varieties of cacao at present cultivated in Ceylon are liable to be affected by the same diseases, and when the latter appear in the fluted and high stems of the Forastero variety are very difficult to effectively excise. There has been, during the last two or three years, a distinct tendency to plant the old Caracas type in preference to the Forastero; the change of variety can be shown to be one of the factors responsible for the varying value placed upon the cacao exported from Ceylon.

During recent years the cultivation of shade trees for cacao has also undergone considerable change, and whereas the original plantations contained mixed species of forest types, or a preponderance of *Erythrina umbrosa*, they are now giving way to *Hevea brasiliensis*, *Erythrina lithosperma*, *Castilloa elastica*, etc; furthermore, the results of experiments indicate that the shade of *Erythrina lithosperma* need not be permanent throughout the whole year, but may be treated so as to form a shade of varying intensity according to the seasons.

In all the species mentioned above there is observable one important and common agreement, *i.e.*, they all change their foliage annually and return large quantities of organic matter, in the form of leaves, to the soil. Methods of manuring have also changed, to some extent, during the period under consideration, and the effect in the change of modes of cultivation can be shown to affect the quantity or quality of the article produced. The Ceylon methods of cultivation, particularly with regard to pruning, weeding, and manuring, are almost unique, and the differences observable in Surinam, Trinidad, Samoa, Cameroon, etc., provide interesting material for our consideration.

In Ceylon the methods of fermenting, washing, and curing are often quite different, and sometimes quite in contradiction, to those of other countries, and the effect of these processes on the quality of the article is only too fully recognized. In the opinion of many the condition of the trees, whether they are free or suffering from disease, is of importance in determining quality and quantity.

It is, therefore, obvious that there are several factors which need to be considered in connection with the present and past condition of the cacao industry in Ceylon.

The factor which is perhaps more responsible for the range in value of the cured beans than any other is the variety of cacao selected, and with this we will deal."

(To be Continued.)

SHIPPING TESTS WITH ORANGES

A summary of the principal points of the investigation of the causes of decay in oranges in shipments in 1906, by the Bureau of Plant Industry, U. S. Department of Agriculture. The loss from decay in oranges in 1905 amounted to \$1,000,000 or more. The decay is caused by a common mould which usually enters the fruit through an abrasion in the skin or else enters an orange that has had its resisting power weakened into some other manner. More than half the decay in the eastern markets can be readily traced to mechanical injuries in the skin of the fruit. Moist, warm air provides ideal conditions for the growth of the decay. Cold air or dry air may prevent the germination of the mould spores and retard the growth of the disease if it has already started. It is unusual for decay to appear in a clean, sound orange even under adverse conditions.

The investigation in 1906 has covered the following field :—

1.—The mechanical injury in picking the fruit and the damage done by handling it in packing house.

2.—The decay in sound unbrushed, brushed and washed fruit, and in fruit all of which has been injured by the clippers in picking, by stems puncturing other oranges or by abrasions of other kinds.

3.—The decay in sound unbrushed, brushed and washed fruit in the coast, mid-valley, and upper valley regions.

4.—The decay in New York in sound unbrushed, brushed, washed, and in mechanically injured fruit shipped under ventilation, under icing, and under pre-cooling. In the last method the fruit is cooled to 35 to 40 degrees Fahr. in a cold storage warehouse before shipping, and is then forwarded under icing.

5.—The decay in New York in sound unbrushed, brushed, washed and mechanically injured fruit delayed from one to seven days after packing in the packing house.

6.—The distribution of decay in the car in unbrushed, brushed, washed, and in imperfect fruit when shipped to New York.

Clipper Cutting.—The average injury from cutting the orange with the clippers or shears in severing it from the tree has been about 5 to 8 per cent in 1906. In 1905 it averaged 15 to 20 per cent. The injury seems to be reduced to a minimum when the picking is done by trained gangs of men under the control of the packing house, or when the packing house employs an inspector to guard the different growers against this type of injury. The injury appears to be more common when the fruit is picked by the box and when the pickers are not under careful supervision. The oranges delivered to packing house by different growers may vary from 1 to 40 per cent. in the amount of clipper injury, and a similar variation is common in the fruit picked by different men in

the same grove. In several of the largest interests in California this type of injury has averaged not over 2 per cent. in 1906.

Stem Puncturing.—The average injury from stem puncturing has probably not been greatly reduced in 1906. This type of injury is the result of leaving the stem of the orange too long. It has averaged not over two to three per cent. in large interests which have handled the fruit with great care, but it often runs as high as 20 to 30 per cent. There is usually from 2 to 4 times as much stem puncturing in washed as in dry brushed fruit. Stem puncturing is caused most commonly in the grove in dropping the fruit into the picking bag, and in pouring it into the boxes. In the packing house it is increased by steep gravity runs, by the oranges dropping into the bins, by washing the fruit and by other forms of rough handling. It is most severe in packing houses with overhead, complicated machinery, and in all houses in which the machinery is run at a high rate of speed. There are other common forms of mechanical injury such as gravel punctures in the oranges in the bottom of the picking boxes, finger-nail cuts and punctures and abrasions caused by incidental disorders in the packing house machinery.

Decay in Unbrushed, Brushed, Washed and Imperfect Fruit.—An average of a large number of tests made in all parts of the orange district with oranges held two weeks in warm, moist rooms, or under the most favourable conditions for decay, gives the following approximate results.

Unbrushed fruit apparently free from mechanical injuries, 1.5 per cent. decay; brushed fruit apparently free from mechanical injuries, 4.0 per cent. decay; washed fruit apparently free from mechanical injuries, 12.0 per cent. decay; mechanically injured fruit (clipper cuts, punctures, etc.), 36.0 per cent. decay.

The unbrushed fruit from the coast to the upper valleys has averaged from 1 to 2 per cent. decay in all places; the brushed fruit from 3.5 to 4.5 per cent., and the washed fruit from 11 to 12.5 per cent. Similar treatment in handling has produced similar results in all sections.

Shipping Tests.—Ventilation.—When shipped quickly after packing under ventilation to New York the decay in twenty cars of fruit forwarded from the last of February to the middle of April was as follows:

Unbrushed fruit apparently free from mechanical injuries, 1.5 per cent., brushed fruit apparently free from mechanical injuries, 1.5 per cent.; washed fruit apparently free from mechanical injuries, 4.5 per cent.; mechanically injured, 17.0 per cent.

Precooling.—The fruit that would have rotted under ventilation or under icing is likely to decay as soon as it warms up. There is a double advantage in having clean, sound, unwashed fruit to ship. First it carries well under all systems of shipping, and second, it is more likely to remain sound on arrival in the distant market.

Delayed Shipments.—When brushed, washed and mechanically

injured fruit has been held in the packing house, one, three, five and seven days after packing, and then shipped under icing to New York, the decay in all of the grades in ten cars was as follows :

Shipped the day of packing, 2.0 per cent.; shipped three days after packing, 5.0 per cent.; shipped five days after packing, 10.5 per cent.; shipped seven days after packing, 11.0 per cent.

The delay in shipping affects the brushed, sound fruit least, and the mechanically injured fruit most.

These results, as far as they go, appear to indicate that the fundamental requirements for the successful shipment of the orange are that the fruit should be delivered to the packing house free from scale and free from mechanical injury, it should be handled in a packing house with enough care to prevent mechanical injury, and it should be shipped quickly after picking at the coolest practicable temperature. As conditions vary from these fundamentals the probability of loss from decay increases.

" IS IT A NEW THING OR DISCOVERY ? "

SOME people may be anxious to know how we manage to get milk from our cows when the calf happens to die. Well, every penkeeper is acquainted with the fact that cows know their little ones in two ways, by sight and smell. Once in possession of this fact we came to the conclusion that in the event of our succeeding to, as it were, deceive the sight and smell of the milch cow, we could then talk of victory. We had not too long to wait, long enough though, before having an occasion for an experiment. A little calf died, we skinned it, and on the following day having tied the mother to a post, we clothed another calf with the skin and the cow yielded her milk at once. It was a success, it was a discovery. Now we have calves sucking even three cows. It will be too long to go into details, and how to apply this method to peculiar cases ; every penkeeper will succeed if care and wisdom be used. The skin is put on the calf for about a week while sucking, and afterwards it can safely be removed and sold, because the cows are quite at ease with their step-children.

We think this system of immense benefit to penkeepers, both in the way of getting milk that would otherwise be lost, and in avoiding dangerous disorders caused to cows by the loss of their little ones. B.

Reading, Montego Bay, 15th September, 1906.

POULTRY NOTES.

POULTRY-KEEPERS should prepare for the heavy weather which is due towards the end of October. At this time of the year fowls are either moulting or have just got through it. There is a great call on the system to make new feathers, many hens get very bare,

and if in this condition they are sleeping on trees and are beaten by continuous heavy rains for a week or two, with no arrangements made for them to feed under cover during the wet days, then there will be a fine crop of disease and deaths, and at the best all the fowls get a set-back, so just when eggs are dearest, they do not lay. Whenever hens stop laying to moult we see many people at once cut down the food supply, forgetting that it takes as much food and care to produce feathers as eggs. By care we do not mean coddling, but simply reasonable attention, -and what is reasonable attention? It is sufficient food, and that is a good, big handful to each fowl morning and evening, when they have a free run, and another handful during the day, when they are confined; suitable food, -and that means, in the morning house-scrap, and failing sufficient of these, something to make up for them, such as, near the towns where these foods can be bought—bran and middlings or cornmeal, in the country bran and green bananas boiled, or ripe bananas, and some green corn, duck ants, and plenty of green stuff, which they generally can pick up, and in the evening ground country corn; whole corn ground should not be fed regularly, and never in confinement. The fowls should be kept under cover, no matter how rough the building is; in fact a roof is enough; proper roosts should be put and dry earth flung beneath every morning, and the whole of the droppings and earth cleared out once a week at least, and put on some growing crops. There is no great trouble involved; it is more common sense—that is, the appreciation of the fact that all live stock to be profitable demand some little attention, some knowledge of their requirements, and the realization that something for nothing is not fair business, either with a hen, horse, or human.

No poultry-keeper should mate hens with a closely related cock, yet many, oh so many, think nothing about mating, brothers and sisters, father and daughter, and get no new blood. Result—weakly chickens, many deaths, small fowls, poor layers. Others wait till the hatching season is on, and then are in a flurry to get good roosters just when they are most difficult to get, because those who breed stock birds do not care to keep a crowd of young roosters eating their heads off and a nuisance to the other fowls, and if they do not sell them for stock birds, sell them for table. Consequently about this time is the best to get fresh blood in the form of vigorous young roosters.

An almost unvaried diet of corn and cornmeal is often the cause of the bad cases of yaws in young turkeys often seen, even when sanitary conditions are not at fault (the usual cause of yaws in poultry being closely shut up sleeping quarters, or sleeping in places dirty with their own or other fowls droppings). The cases we have seen were really a kind of scrofulous affection, arising from congestion of the liver, which fills the blood with impurities. Feed: brown rice, parched corn ground, give dose of Epsom salts or castor oil, and treat the sores with a touch of tincture of iodine every day.

STOCK NOTES.

THE POPULARITY OF SHORTHORNS.—It is very seldom that the demand for export is so much confined to one breed at the Royal Show as was the case this year. Scarcely an animal was sold at a price worth recording (under the hammer) from any other breed except the Shorthorns. This is quite wonderful altogether, and must be set down, one would think, in a great measure to the fashion that prevails so extensively, both at home and abroad, just now to become possessed of a Shorthorn herd. Whether this fashion at home is due entirely to the high prices this breed are making for export, or whether it is due to the more widely practical dual purpose character of the Shorthorn, it is hard to say. Probably the two reasons have combined to bring about this great desire to become possessed of a herd. The greater attention recently devoted to their milk-giving properties also is not without its effect.

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STOCK SALE.—A large crowd of buyers was attracted to the annual sale of cattle and sheep bred by Mr. Henry Dudding, at Riby Grove, Grimsby. Over £13,000 was realised by the sale. Thirty-six cows sold for over £3,000, 15 bulls realised over £2,000, 56 rams realised £8,460, and 23 ewes were sold for £387; 1,450 guineas were obtained for the shearing ram Riby, Derby champion, which won first prize at the Royal Show, Derby, this year. This is the highest figure ever obtained in England for a ram. The ram was purchased by Mr. Miller, Birkenhead, to be sent to Buenos Ayres. Mr. Miller also gave £580, and Mr. Cascares, for a Buenos Ayres buyer, £560 for other rams. Among the cattle, £1,000 for a two-year-old roan bull, Prince Alastair, was the highest figure obtained.

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GRASS LAND.—In connection with grass land improvements, Colonel M'Inroy, the well-known Aberdeen-Angus breeder, of Edzell, N.B., says:—"I have found basic slag to have the most extraordinary effect on poor permanent pasture here. It has brought up a thick sward of clover where there had not been a leaf of that plant for thirty years. In some instances the clover had gone out of sight for a longer period."

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BEE-KEEPERS.—The Bee-keepers in the Isle of Wight have suffered the loss of quite half of their stocks in consequence of the outbreak of a new and highly infectious disease among the bees in that district. It is supposed to be a form of bee paralysis, the chief symptoms being constipation and loss of the power to use the wings.

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YEAST TREATMENT FOR BARRENNESS.—The "Breeders' Gazette"

(Chicago), publishes the following particulars of the yeast treatment for barrenness :—“ Take an ordinary two-cent cake of yeast and make it into a paste with a little warm water. Allow this to remain in a moderately warm place for 12 hours, then add one pint of lukewarm freshly boiled water, mix and allow to stand for another 12 hours. Prepare this mixture 24 hours ahead of the time the cow is expected to come into heat and inject it into her vagina the moment she is seen to be in heat. Breed her when she is just going out of heat. The theory upon which the use of this mixture is based is that the usual cause of barrenness is bacteria of some sort or another, and that they give rise to an acrid condition of the secretions of the generative organs which is destructive to the female ova and male spermatozoa. The yeast fungi (*Saccharomyces*) when introduced, as suggested, are supposed to invade every part of the cow's generative organs, destroy all bacterial life, and incidentally neutralize the acrid condition referred to. We understand that to Dr. Peters of the Nebraska Experiment Station belongs the credit of having discovered the first intimation of this method of treatment in a French medical book or journal. It is to be hoped that it will prove a success, and readers are requested to give it a thorough trial and report results. The fluid yeast ordinarily kept in the household will answer instead of the yeast cake, using about the same amount that is required for an ordinary baking.”

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HOG CHOLERA.—If there is any one who is losing pigs, and the symptoms are those of hog cholera, we shall be glad if he will communicate with us. We wish to try a new “cure” on a wider scale than any test yet previously made.

MILKING TRIALS.—At the milking trials at Tring Show, Buckinghamshire, England, the first prize for yield of milk was won by a cross-bred Shorthorn-Jersey cow 24 years old, yet we in Jamaica think that a cow is too old at 10 years, whereas with our natural feed only, and lateness to mature, cows should only be in their prime then.

BRITISH PEDIGREE STOCK FOR THE ARGENTINE.—The growth and expansion of the live stock industry in Argentina is certainly of a most phenomenal character, and when we hear of one South American estanciero coolly embarking his thousands in the purchase of Shorthorn cattle and Lincoln sheep, with no more ulterior object in view than the improvement of his flocks and herds, it speaks volumes for the optimistic opinions held in that vast country as to the future of the live stock trade. For the prize bull at Perth, 1,500 guineas was paid; Ruddington Prince Christian 89,997, bought at the Ruddington sale for 1,100 guineas. Mr. Deane-Willis' champion bull at Derby Royal, viz., Bapton Viceroy, for which £3,000 was paid. Several other bulls, costing from 500 to 1,000 guineas, complete the list of selections, and accompanying these are twenty Shorthorn cows and heifers, costing 300 guineas and upwards. In Lincoln sheep, the best has been

purchased, and include Mr. Dudding's champion ram and first prize pen of rams at Derby Royal, costing at auction respectively 1,450, 580, 350, 300, 430, and 500 guineas each, as well as an unbeaten pen of shearling ewes at a cost of 90 guineas; the second prize ram at Derby Royal purchased for 500 guineas, the second prize pen of rams at same show costing 1,000 guineas, and in addition 1,500 Lincoln shearling ewes, selected regardless of cost from most of the leading flocks of the breed.

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HORSES.—In years gone by horses were to be found that, without all the many months of pampering and preparation, ran, at not only country meetings, but also the most important places, heats of $1\frac{1}{2}$ and two miles, carrying their 10 and 11 stones, and a breakdown was seldom heard of. Then races over three miles brought out the horses with stamina, bone, and muscle. Where are these horses to-day? They are not to be found, and why? Simply because the race clubs have eliminated from their programmes all the longer races, substituting flutters over four to seven furlongs, thereby encouraging horses of an entirely different class. These horses are bred from the fastest flyers, merely with the object of producing a "time record breaker" over a short distance, and as these break down for the want of proper stamina in most cases, occasionally from accident, they find their way to the stud, the consequence being that to-day, instead of having horses like those of a quarter of a century ago, we are breeding from inferior horses, and therefore encouraging their degeneration.

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VERY OLD HORSES.—What is the "record" age of a horse? The "Field" says that a representative lately saw an animal 28 years old running near leader in a provincial coach. It was not once touched with the whip. A correspondent, Vice-Admiral Woolcombe, caps this, however, with an account of a horse of his brother's which does light work, including a seven miles out and a seven miles back trip a week in a very hilly country, at the age of 34 or 35. He "makes nothing of this work," and shows a "most friendly disposition." This case will clearly take some beating.

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SULPHATE OF IRON.—Sulphate of iron is well known by stock-keepers as a tonic for horses, and it is used in nearly all condition powders. But it is not so well known that it is just as good a tonic and stimulant for plants, being used at present on cocoa trees on at least one large estate with great success in combating all fungoid troubles by application to the roots. Sulphate of copper, the chief ingredient in Bordeaux mixture, is used as a spray or wash and is a more expensive substance. The effect of an application of sulphate of iron to cocoa or orange trees suffering from scale or any fungus trouble is said to be sometimes marvellous. A pint of pulverised sulphate of iron sprinkled on the surface under each tree suffering from any such trouble and raked in, should be tried.

LIVERPOOL RAT VIRUS vs. TRAPS AND POISON.

To Poultry-keepers.—Poultry-keepers know from bitter experience how great a curse rats are about a poultry-yard. Sooner or later these pests are sure to make their appearance, and until they are got rid of success can scarcely be hoped for, because the rats will steal the eggs almost as soon as they are laid, while the havoc they will work among the young chickens or ducklings is simply horrible.

In spite of what the "trap" manufacturers would have us believe, rats are very difficult to trap. Again, while rats are chary of touching poison, other creatures are sure to do so, and no matter how carefully placed, there must always be the dangers of birds, or even the rats themselves, carrying it from where it has been placed, and leaving it in such a position as to constitute a danger to poultry, pigeons, cats, dogs, etc.

The "Liverpool Virus" is always effective and harmless to all life except "rats." See advertisement.

ARROWROOT.

THERE are two kinds of arrowroot grown in Jamaica, commonly called White and Black, the former being the true arrowroot of commerce, (*Maranta Arundinacea*), and the latter, Tous-le-mois (*Canna Edulis*). The latter is a plant of larger growth and a better yielder than the former. Arrowroot is not cultivated much in Jamaica, but grows of itself, among other cultivated plants, or in old provision grounds, where a little of it has originally been planted. It ratoons and spreads of itself under the favourable circumstances of rich, moist soil, yet well drained. The writer has seen large patches of it in Jamaica, chopped down over and over again, just to grow up again. He has seen it dug out, apparently completely out, but wherever a bit of root happened to be left, again it came up and spread.

Yet for all this it is never sold in Jamaica by the settlers, either one or the other variety or mixed, at less than 6d. a quart, which is equal to 4d. or 4½d. a pound according to dryness. Some time ago we tried to get local arrowroot kept in the local stores in place of St. Vincent, and Hanover arrowroot was sold for a time but there is always difficulty about getting a regular supply of a uniform quality at a uniform price. It is a specialty of St. Vincent, they have whole estates growing it, well equipped factories to deal with it, and so like everything else, in the same position,—the organized industry beats the unorganized, in spite of freight and duty. We dare say St. Vincent people use Jamaica ginger, and probably Jamaica rum, although they can grow ginger and sugar.

This question of arrowroot arises again from the fact that the prison authorities have been using imported St. Vincent arrowroot, bought at 2½d. per lb. (free of duty) because they could not get a supply of good Jamaica arrowroot even at 3d. per lb. We are trying again to see if even this small item for imported arrowroot can be saved to Jamaica.

We cut the following paragraph from the Journal of May 1903, and we also made reference to the same matter in the Journal for November, 1900 : "Jamaica produces a goodly quantity of arrowroot, and Hanover, Lamb's River, and St. John Local Agricultural Societies have been anxious to get a market in Kingston. But when their quotation runs about 20s. per 100lbs., f.o.b., Kingston, as against St. Vincent landed here at 15s. per 100lbs., including duty, at 4s. 2d. per 100lbs., it is obvious merchants will take the cheapest." (Journal for June, 1900).

The following further particulars concerning arrowroot may be of interest :—"In Great Britain the arrowroot of commerce is generally understood to be the product of *Maranta arundinacæ*, which is largely cultivated in the West Indies.

The starch made from *Canna edulis*, which plant yields much heavier crops than *Maranta*, is sold under the name of Tous-les-mois, and also as Queensland arrowroot. Some years back the Agent-General of Queensland procured a collection of samples of commercial arrowroot, of which two were crystallized, and particular striking is the enormous difference of over 100 per cent. in their price, although the analyses show practically no difference in the appearance. It would be of great interest to learn what properties guide the merchants in the fixing of the market value. The Agent-General reported at the time the following prices of the samples obtained ;—

	Market value per lb.		Retail value per lb.	
Bermuda arrowroot	2s.	2d.	2s.	6½d.
Bermuda (Kina) arrowroot	—		1	1
Natal arrowroot	0	6½	0	9½
St. Vincent arrowroot	0	2½	0	6½
St. Vincent arrowroot	0	1½	0	3½

Quite recently a current price list of Messrs. Cross & Blackwell quotes :—

Arrowroot, 1lb. tins at 5s. 6d. per dozen,
Tous-les-mois, 1lb. tins at 8s. per dozen,

giving the product of *Canna edulis* the highest market value, which is of some importance to us in Jamaica, for as we have pointed out the Tous-les-mois gives larger returns.

The commercial value of these arrowroots must be based on their starch contents, and we find from examination of the results given in the table practically no difference between the products of *Maranta* and *Canna*. The former is always whiter and looks

nicer as prepared here, but the latter has a more silky gloss ; the starch grains are very much larger than *Maranta* starch :—

Analyses of Arrowroots prepared from *Maranta arundinacæ*, at Bermuda.

Price in London	2s. 6½d. lb.	1s. 1d. lb.
Moisture, per cent.	13.50	15.86
Starch, per cent.	82.84	82.61
Ash, per cent.	.124	.172
Proteids, per cent.	.052	.087
Fibre, by diff., per cent.	4.09	.128

Prepared from *Maranta arundinacæ*. *Canna edulis*.
in Queensland.

Moisture, per cent.	15.01	14.28	17.36	16.36
Starch, per cent.	76.22	78.80	81.52	82.00
Ash, per cent.	.308	.380	.142	.38
Proteids, per cent.	.153	0.98	.078	.070
Fibre by diff., per cent.	8.31	6.42	.90	1.19

COMMENTS.

BOARD OF AGRICULTURE.—The three weeks course for operating Distillers and Managers in direct control of Distilleries in which 10 scholarships of £10 each are awarded, is fixed to begin October 23rd to November 13th.

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VEGETABLE SEED.—The supply of vegetable seeds ordered on behalf of members of Branch Societies, has arrived, and we have a margin to supply those who did not make up their minds in good time to grow some vegetables, and to order seeds specially. Those who are regular buyers of seed every year, and who do not require urging to start growing some vegetables should note that vegetable seeds can be had through our advertisers, Mr. C. C. Cody, King St., Kingston, who stocks American seeds at 3d. a packet, and Messrs. W. H. Johnson & Co., King St., who stock Sutton and Son's seed (English) at 6d. per packet, in sealed tins, so that they keep perfectly unaffected by the hot climate. We have made a choice of what we think the best varieties of tomatoes for growing in Jamaica. We do not say that there may not be as good varieties, as there are hundreds of varieties in existence, but we do say that these are strong growers, producing handsome and firm fruit. For wet climates, we recommend the "Stone" and "Acme," and for dry climates, "Crimson Cushion" and "Livingstone's Beauty." We have also made a selection of the many varieties of cabbages available, the old favourite "Succession," "All Season," and "All Head." We have some specialities in threepenny packets of Alfalfa or Lucerne, Mammoth Pumpkin and Climbing Cucumber.

PANAMA CANAL.—We are glad to say that arrangements are now being made for a contract to be given to Jamaica for the supplying of yams, cocoes, sweet potatoes, oranges, lemons, limes, grapefruit, lettuce, turnips, cucumbers, melons, and tomatoes, but not cabbages or carrots to the Canal Zone. This will provide a large market for products that are easily grown here, and we trust that such districts where such products are best grown will take up the systematic cultivation of these to keep up a supply all the year round.

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BULLS.—Sir Alfred Jones has again made a present to the Island of two bulls, two Shorthorns having been sent out to the Governor, who has referred the handling of the animals to the Society. These bulls are at present undergoing a process of acclimatization in the veterinary stables in Kingston, and applications are asked for their use on terms to be had on application to the Secretary.

Through the sale of the three other bulls presented to the Society some years ago by Sir Alfred Jones, and which had been taken charge of by the Society and proved to get good and hardy stock, the Society has been enabled to offer premiums to encourage the introduction of more pure-bred pedigree stock, and so far as bulls and pigs are concerned, all these premiums will be competed for. We know of five South Devon bulls to be imported, and two Dairy Shorthorns, breeds eligible for the premiums. Thus the purpose of Sir Alfred Jones, to give an impetus to the improvement of our cattle is being fulfilled, and that quickly.

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SHOWS.—We call attention to the old and favourite Kendal Show, to be held at Kendal on Wednesday, 28th November. Some very fine live stock is in preparation for this Show, and probably the horses will just about beat anything that has yet been shown there. On 1st January, Savanna-la-Mar will hold their annual Show, and as it was not held last New Year Day, and was much missed, the whole of Westmoreland should be all the more eager for it to be held again. Montpelier Show has been fixed for 21st February, at Montpelier, and it is intended to be as great a Show as the last, but with improved arrangements. A list of forthcoming Shows is always printed at the end of the Journal, where it will be seen that various Branch Societies are active in running small Shows of their own.

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JUDGING PRIZE HOLDINGS COMPETITION.—Those interested should note that the judging in St. Ann will begin on October 22nd and continue till finished. Entries will be taken right up to the 20th October, leaving time for the Judges to arrange their itinerary. The Judges will be Mr. Cradwick and Mr. Arnett. The judging for Manchester is fixed to begin on 17th December. All entries should be made by 30th November. The Judges will be Mr. Cradwick and Mr. Palache. The judging for Trelawny is fixed for February.

INSTRUCTORS.—It has been definitely arranged that Mr. Cradwick will remain in the Western District till the end of the financial year, 31st March, and, thereafter, will take charge of his new district, comprising St. Catherine, St. Mary, and Portland. A new Instructor for the Western District was advertised for, and eight applications received, seven of which were considered, and the appointment made of one, who, although a stranger to the Board, had the best references, and who appeared to possess the best qualifications in education, experience, and general ability for the making of an excellent Instructor. He has, however, on consideration of the requirements involved in travelling expenses, declined the appointment. A man of experience and standing in agriculture could not accept a sum like £250 a year to cover his salary and travelling expenses, and work a large district except he happened to live in the district, any way, and have private interest there from which an additional income accrued; otherwise, it is only young and enthusiastic agriculturists, with ulterior motives of self-improvement and advancement in their profession, who could undertake the duties at that. It cannot be expected, for the amount offered to cover remuneration and travelling, that an Instructor can be secured of the particular capabilities for the work of those who have already had years of training in the active work, but who began at first on a small scale. Therefore the Western District must not be too exacting at first, whoever may be appointed. We cannot help saying that our ideas of the qualifications for an Instructor are perhaps too high, but we are impressed with the importance of the work, the good that may be done by the right type of man, the harm that an incompetent man may do.

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EXHIBITION OF COLONIAL FRUIT.—A great display of Colonial Fruit is to be made under the auspices of the Royal Horticultural Society, Westminster, London, on December 4th and 5th, next. Some of the other colonies have expressed the intention of making a great effort at this Exhibition. The South African colonies are especially anxious to get into the London market with their oranges and some other tropical fruits. Jamaica should not be behind hand, and we should be glad to take charge of any exhibits intended for this Exhibition. The Steamship Companies will likely give free freight as usual; the railway will probably do so too, as before, and the sale of the fruit may give some return after all the expenses of handling are paid. We shall send oranges, especially navel oranges, grapefruit, shaddocks, lemons, seville oranges, etc.

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BULLETINS.—The Ceylon Agricultural Society is very active in publishing useful Bulletins, copies of which we receive. We now, among other useful publications, acknowledge receipt of Bulletin No. 26, on Bud-rot on Coconut Palm, a matter in which we are much interested here; Bulletin 28, on a simple preventive against

malaria, consisting of equal parts of citronella, kerosene and coconut oil, and a small proportion of carbolic acid, which produces a limpid liquid, smelling only of citronella, and which when rubbed on the skin has a lasting effect against mosquitoes ; Bulletin 27, on the Improving of Local Races of Plants. We shall publish the Bulletin on Bud-rot of the Coconut Palm in next Journal.

COFFEE.—We regret that a very interesting article by Mr. Cradwick, Travelling Instructor, on Cocoa and Coffee, and Pigs in Hanover, arrived too late for insertion in this number. He calls attention to the great success of Criollo Cocoa amongst small settlers in Hanover, and gives instances of some of these being roused to industrious perseverance in caring their old trees and in steadily planting out more cocoa. He gives very necessary and useful advice, which requires to be insisted upon in all the coffee districts, perhaps, outside of the Port Royal Mountains, as regards picking coffee, and that is only to pick ripe berries. He points out one great advantage, and that is that ripe coffee weighs heavier. This argument carries weight with it (obviously!), and should be very successful in appealing to the people not to pick unripe berries.

SCALE ON ORANGE TREES.—We are also always glad to hear of efforts to get rid of scale on orange trees. This is a case where the trees were very much affected :—"The emulsion you recommended me to use seems fairly good for white scale, but the scale has not entirely gone yet. I first spray with kerosene emulsion, and then follow on using the mixture you told me of to paint the limbs with; the castor oil in the mixture sticks longer to the trees.—F.A.C., Ocho Rios.

EARLY ORANGES.—A correspondent who has charge of an orange grove gives another instance of the versatility of our climate, and what scope it gives us for manipulating fruit trees. In working for early fruit the trees got out of hand, and one year bore in July, the next in May, the next in April, and this year in February. To get them in hand again, the only thing we can suggest, will be to lose one year's fruit, and as they will probably this year bear in January or December, the plan to work on would be to relieve the trees of the fruit in November, to encourage the trees to blossom again in the usual time, January and February. We shall be interested to hear from correspondents who are carefully working their orange trees, of instances how their treatment has affected the trees.

TICKS.—We are always glad to hear of success in efforts to eradicate ticks from pastures. The following may be of interest to readers :—"I notice in the Agricultural Journal enquiries about tar, used for tick wash ? I use, as follows : one gallon tar, 1lb. soft soap, 1lb. washing soda, 20 gallons water, boiled for two hours, and then stored in a cask, and used as required, being careful to

stir before taking any out to bring up the tar from the bottom. It is an excellent wash, and cheap as well. Three years ago one could hardly leave the house without getting smothered in tick, now I can walk all over the property, and seldom pick up a tick at all.—St. Ann Correspondent.

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RUBBER.—The one thing of absorbing interest at present all over the Tropical World is Rubber, and much thought is given to the relative claims of different varieties as being the best to plant. Conditions vary, and what one would think most natural in a certain region might not be the most suitable after all. For instance, *Castilloa* Rubber, which is indigenous in the Tropics from the middle of Mexico down to the Orinoco, where it seems *Para* rubber begins its natural habitat (though whether these varieties are ever found together, the *Castilloa* being gradually replaced by the *Para*, is not known), would seem the most natural for us to grow in Jamaica, and its growth here seems phenomenal. There are full grown trees of magnificent growth, some in what might be termed most unlikely places—1,500 feet high, in rocky soil. *Castilloa* too, a tree of the lowland forest, has proved itself hurricane-proof here; even when growing near the sea, and exposed to the full force of the storm, the trees only got their tops knocked off, and quickly recovered. Yet few would have thought that *Hevea* rubber, native to the basin of the Amazon, and there thought peculiar to the immediate and often-flooded neighbourhood of the great rivers (though since found to be really native to the upper forest regions of Brazil to a certain limit), would have proved such a success in Ceylon,—where it grows equally well from sea limit to 1,500 feet and fairly well up to 2,000 feet, so long as the rainfall is good and regular. The experience of countries comparatively close to each other is often different. In Jamaica *Castilloa* trees are of quick and luxuriant growth, *Hevea* seems to be slower. There are many *Castilloa* trees planted here years ago simply as a curiosity, and left to themselves, which are now magnificent trees, but we do not find the *Hevea* trees, planted in the same way, to have established themselves in the same vigorous and natural manner. But quick luxuriant growth does not always prove with economic trees, to be most profitable in the long run. The slower growing tree is very often the most stable. And it is just likely that *Hevea*, not available for tapping so early as *Castilloa*,—certainly not so suitable for growing as shade tree for cocoa, will, like a good milch cow, improve with milking, and go on for a long term of years, while the quick-growing *Castilloa* may give out at an early age. Yet there is this argument in favour of the quick growth, that the demand for rubber being great and the price high, and the planting now wide-spread, the aim should be to plant the quickest growing tree thickly, and tap them as soon as possible for all they are worth, before the prices fall. When we are in doubt like this, the best thing for the planter to do, is to “hedge,” and plant both in alternative rows or turn

about. It is also well to plant double so as to be able to thin out every second tree after a few years of tapping. This, shortly, seems to be the position at present. Rubber is not an expensive crop to plant, and with bananas and cocoa as nurses for the young rubber, the latter receives the same weeding (and weeding is the great item in tropical cultivation) for nothing. And later the rubber, overtopping the cocoa, becomes its nurse or foster-mother.

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POTATOES.—We have received orders for over 50 barrels of Irish Potatoes to be planted early in November, the “Early Rose” will arrive in the middle of October, and the “Scottish Triumph” at the end of the month. The land should all be broken up and refined by this time, ready for the drills to be made.

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SEVILLE ORANGES.—We call attention to the correspondence appearing under Board of Management with reference to the supplying of Seville Oranges for marmalade-making. Messrs. Buchanan Bros., Glasgow, are ready to do business in Jamaica Sevilles at 11s. per barrel c.i.f. Glasgow.

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COTTON.—We have been very much disappointed at the lack of sustained interest in the cotton industry. Growers receive a set-back; but with almost every crop set-backs occur. The hurricane was a big set-back to bananas, coconuts, cocoa, etc., but growers persevered. We have had to be contented with getting various small cultivations up to an acre started, and through these, the growers and many in the same localities will learn how to deal with the plant and the crop, secure acclimated seed; and so the cultivation may spread.

BRANCH NOTES.

APPLETON.—The regular quarterly meeting of this Branch was held on Saturday, July 21st. There were present: J. M. Farquharson, jr., Esq., President, W. Cradwick, Esq., and 34 members. After the election of new members, the Secretary announced that the membership of the Society had reached 107. The President, in a nice little speech, congratulated the members, and is desirous that another 100 be added by the end of the year. The second Show of the Society will be held on the 28th December, at Glennyn Pen, kindly lent by Mrs. J. A. Muschett. The prize list for the Show was presented to the meeting and adopted. About £20 will be awarded to the successful competitors, which will be opened to members of the Branch only. The driving and riding competitions and pen-keepers' exhibits will be opened to the island, and certificates only will be awarded to the successful competitors. Mr. Cradwick gave a very interesting lecture on the Curing of Coffee. A few questions were put to the lecturer, and answered. This being all the business, the meeting adjourned.—GEO. RAMTALLIE, Sec.

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PORUS.—A Stock Fair under the auspices of the above Society, was opened at Arcadia Pen, Porus, on Saturday, 4th inst. At the published hour, 8 o'clock on that morning, the gates were promptly opened, and stock that were waiting outside began to pour in; and at a later hour one could pick and choose.

from all classes and qualities of horses, mules, and asses, in either purchasing or exchanging. There were but few cows, and a total absence of smaller stock. On the whole, this opening day was a perfect success, and promises in future to be the place where one will find just the kind of animal he wants. The gates will be opened at 8 o'clock every Saturday morning for business.

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SPRINGFIELD.—On account of the inclemency of the weather the monthly meeting of the officers of this Branch was postponed, the members present were not sufficient to form a quorum. September 28th, 1906.—Circumstances over which we have no control have prevented the officers of the Board of Management meeting to discuss matters relative to the interest of the Society.—P. H. THARPE, Asst. Sec.

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CENTRAL CORNWALL.—At a meeting of this Branch, held at Montpelier, on Friday, 17th September, there were present: Revd. J. Duff, President, in the chair; Mr. J. H. Oliphant; Vice-President; W. Cradwick, Travelling Instructor; Messrs. W. T. Atkinson, J. P. Henderson, J. A. Neilson, Daniel McHayle, C. H. Dunn, D. Pipkin, H. R. Atkinson, and Mr. P. J. Innerarity, members; Miss Walker and other visitors. In the absence of the Secretary, Mr. F. S. Jarrett, who had requested Mr. P. J. Innerarity to act on his behalf, the meeting willingly accepted Mr. Innerarity. After the reading and confirmation of the last minutes, many items from these minutes were discussed. Mr. Henderson is still required to look after the fencing of the model plot at Cambridge. The following members paid subscriptions:—Messrs. Zachery Turner, 1s; P. J. Innerarity, 1s; J. A. Neilson, 1s; George Philpotts Brown, 1s; Mrs. M. Farquharson, 1s; and Alex. James Rose, 1s. The following gentlemen subscribed towards the funds for prizes offered in the next competition:—Revd. J. Duff, 6d.; Messrs. J. A. Neilson, 1s; P. J. Innerarity, 6d.; J. H. Oliphant, 6d.; C. Dunn, 6d.; and J. A. Rose, 6d. It was stated by J. A. Neilson that many members of the Branch complain that they do not regularly get the "Agricultural Journal." Mr. Cradwick said he would look after the matter. It was moved by the Revd. Duff, and seconded by Mr. J. A. Neilson, that the Secretary of this Branch send a resolution to the Secretary of the Parent Society complaining that the members of this Branch suffer an inconvenience in being compelled to prepay postage on any enquiry they may have to make of the Government Travelling Instructor on agricultural matters. It was proposed by Mr. J. A. Neilson, and seconded by Mr. P. J. Innerarity, that the following gentlemen be requested to solicit subscriptions on behalf of the coming Montpelier Show:—Mr. H. A. Stephenson, Bickersteth; P. J. Innerarity, Chester Castle; E. S. Jarrett, Ginger Hill; J. H. Oliphant, Cambridge; A. Anglin, Retrieve; James Barracks, Ginger Hill; G. C. Muschette, Catadupa; Daniel Brown, Porter's Mountain; C. N. Scott, Lethe, and D. N. Walker, Mount Pete. Mr. Cradwick informed the members and others present, that he would be willing to be with any of them who wanted any special instruction or information on agricultural matters on any day between 27th September and 6th October, 5th October, excepted. The Chairman, Revd. J. Duff, read a copy of a resolution, drawn up by himself and the Secretary, on behalf of this Branch, concerning the proposed removal of Mr. Cradwick from his present district, and which they forwarded to the Board of Agriculture. The meeting was in full accord with the resolution, and unanimously approved of the timely step taken by the President and Secretary. Another letter, drawn up by Messrs. H. A. Stephenson and P. J. Innerarity on behalf of this Branch, concerning the same matter was submitted to the meeting. On the approval of the letter it was signed by all the members present. The next quarterly meeting will take place at Cambridge schoolroom, when the following products are to be exhibited and prizes offered:—Six cocoa pods, two quarts of cured pimento, two quarts of parchment coffee, or one quart cured coffee, six dry coconuts, 1 quart cocoa seeds, one bunch of bananas (full fruit), one negro yam, 1lb. guava jelly. Coffee has been substituted for breadfruit.—P. J. INNERARITY, Asst. Sec.

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FAIR PROSPER.—The regular monthly meeting of this Branch was held on Saturday, 1st September, 1906, when there were present: Messrs. L. A. Brown (Vice-President), in the chair, J. W. Munroe, C. A. Duncan, J. Thomp-

son, A. Kelly, D. Munroe, J. Munroe, Wm. Johnson, and the Secretary. Minutes of last monthly meeting were read and confirmed. New Members.—Robert Beckford of Fairy Hill, Priestman's River P.O., was elected a member of the Society. Lateness in commencing meeting.—Mr. Thompson spoke strongly of the non-punctuality of members attending the meetings, and took this opportunity of reminding members that meetings are fixed to commence at 5 p.m. on the 1st Saturday in every month. Accounts of the recent Show were presented and accepted, and the remaining persons who did not receive their prize money at last meeting were paid off. Correspondence read and discussed. Resolutions.—The following motions were put and agreed to: 1st.—“That in order to keep up the interest that has been created by the last Show, this Society, either in conjunction with the several Branch Societies in this Parish, or by itself, hold another Show in December next, date, etc., to be fixed later.” 2nd.—“This Society hereby desires to express its appreciation of the past services rendered by W. Cradwick, Esq., and further to express its thanks to the Government for transferring that gentleman to this Parish as Local Instructor.” 3rd.—“That steps be at once taken to establish a Penny Savings Bank in connection with this Society, as a forerunner to the Agricultural Loans Bank.” Bills.—A bill of ten shillings to the account of J. Munroe and others was credited to their awards. Another bill of 3s. 3d. due to Mr. Arnett was presented. Mr. Thompson promised to pay that amount, as he was so much pleased with the pig. Boar.—Mr. Thompson, as a member of the Boar Committee, gave a good report of the boar, the keeper, the fence, and the house. He thought there was much to be thankful for. Information re Penny Bank.—Mr. Brown promised to help the Secretary to get up all the necessary information respecting the organization of the Penny Savings Bank. Information re best time for planting pine-apples in this locality was asked to be given at next meeting. Adjournment of meeting after having spent evening.—W. ZECHARIAH BUCKLEY, Sec.

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UPPER TRELAWNY.—The annual meeting of this Branch was held at Albert Town, on Wednesday, 29th August. There were present: Revd J. R. M. Cass, President, in the chair; T. F. Forbes, Esq., Vice-President and Treasurer; J. D. Easy, Secretary, and a good number of members and visitors. After the usual formalities, the Secretary read his report of the year's work, etc. The Treasurer's statement of accounts showing a balance in hand of £3 16s. was also read and adopted. The officers for the current year were elected as follows:—Revd. J. R. M. Cass, President; Messrs. J. E. Neita, T. F. Forbes, and J. R. Bryan, Vice-Presidents; T. F. Forbes, Treasurer; J. D. Easy, Secretary, and D. R. Wright, Assistant Secretary. Among other things that occupied the attention of the meeting was the jippi-jappa hat industry, and the appointment of a Local Instructor in agriculture came in for the largest share. With regards to the former, it was reported that a class had been started at Albert Town, and that there were about twelve pupils. The teacher is Miss Rainford. In re Local Instructor, after much discussion, it was decided that a resolution, showing the views of this Society, be sent to the Chairman of the Conference that appointed the Local Instructors. The following is an extract from the Secretary's report:—“The Society is in good standing, the membership up to date being forty—an increase of five upon that of last year. With renewed efforts all round, and a clear idea and just realization of the benefits of a Society like this, there is no reason why the membership should not go on increasing from year to year. Co-operation was the note sounded last year—a note that cannot be too strongly harped upon—and during the coming year, as well as succeeding years, it should always be the dominant note. Let all join hands in the uplifting of the district, and with a strong pull, and a pull altogether, the Upper Trelawny Branch of the Agricultural Society will get safely over all ruts and boulders that may be in the way, and continue to be a power for good. There have been seven regular meetings held during the year, and two meetings for lectures—one by Revd. W. M. Webb, M.L.C., and one by Mr. J. Hirst, Local Instructor in Agriculture. The Hon. and Revd Webb's lecture was chiefly to awaken interest in his constituents, but he also dealt with matters of agricultural interest, and made some promises, the fulfilment of which the Society is awaiting. Mr. J. Hirst, the Local Instructor, lectured on the Prize Holdings Scheme,

etc., etc. Mr. Hirst has resigned his position. It is to be regretted that at this time the district should be without a Local Instructor, as this may militate largely against the success of the prize holdings competition. The appointment of a new Instructor to visit the cultivations and holdings, and to reside for some portion of his time in the districts under his charge, is much to be desired. The matter of People's Banks occupied the attention of the members for some time, but though many were, and are, in favour of it, the bank has not yet become an accomplished fact. That there is need for systematic saving goes without saying. 'He who saves money, earns money.' Seeds of cabbages, turnips, and carrots have been bought and distributed to the members, and soon the Society hopes to be in possession of an Angora ram and a Berkshire boar. Thanks to the energy of the President, and Mr. D. R. Wright, there is now a market, and a resident blacksmith at Albert Town. The market was opened at Easter, and is still 'alive and growing,' and it is hoped that the blacksmith will be warmly supported. This is the eighth year of the Society. The amount of work accomplished is fair. Another successful year is looked forward to hopefully." [There is undoubtedly an omission in this report as the Secretary and Mr. Robert Thomson attended a Branch meeting and spoke.—Ed.]

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FORUS.—The usual monthly meeting of this Branch was held in the Church schoolroom, on Monday, 3rd September, 1906, at 7 p.m. Members present: Revd. W. B. Esson, Vice-President in the chair; R. S. Munroe, Treasurer; W. A. Morgan, T. Morgan, Jno. Campbell, Alex. Thomas, Samuel Price, Maurice Daly, J. D. Price, A. S. Rose, Secretary; C. Rowland, Assistant Secretary. Minutes of previous meeting read and confirmed. The first business brought up was that of the Fair. Mr. Thomas suggested that the Fair could get on without charges at the gate. The Secretary said that he would not agree that there be no charges made at the gate, as he had never seen a Fair without charges being made. It was agreed to that the Secretary ask Mr. Williams for the continuation of the Fair at his premises for six months longer, but should he ask for payment, the amount of 2s. per month be offered, but not from the Society's fund. Mr. M. Daly, who was appointed gate-keeper, was asked to give his report: First Saturday at Mr. Williams' premises, 39 head of stock were on the ground; second Saturday, 13 head. As it was agreed to that the Fair be free for a few weeks, it was suggested by the Revd. Esson that the Assistant Secretary overlook the gate, and the sort of stock that go in. It was suggested that the matter of the Spring Grove bridge be left over until the new board be constituted. Mr. S. Price suggested the getting of a young Berkshire boar for the benefit of the Society and for the improvement of the breeds, and that the Secretary of the Parent Society be written to asking him when he will be back in the Parish, and to appoint a day when he would come down and give a practical demonstration on the pruning of oranges and budding. It was suggested by the President, that Mr. S. A. Hendricks be asked to stand for another term in the Parochial Board, and that a letter of thanks be sent him for his past services, and that he himself would have no objection to stand for election. It was suggested by Rev. Esson that at next meeting the matter of an Agricultural Show be considered. Members promised to give their energy to the support of the Show, and that it be called 'A Small Settlers' Show.'—C. ROWLAND, Sec.

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TRINITYVILLE.—The regular monthly meeting of this Branch was held on Friday, 1st June, W. A. Carr, Esq., presiding. There were also present: Messrs. J. A. Anderson (Vice-President), F. A. Stewart, Henry White, Henry Kennedy, John Ross, R. Davidson, Wm. Burgher, T. Cooper, R. Reid, Jas. McPherson, Geo. Telfer, J. T. Edman (Assistant Secretary), and E. S. Edwards (Secretary). Mr. T. D. Wint was also present as a visitor, and subsequently became a member. The chief business of the meeting was that of making final arrangements for the Show, to be held under the auspices of the Branch, at Serge Island Estate on Wednesday, 1st August. (since postponed.—Ed.) The Prize Lists, which are in the hands of the printers, did not arrive as was expected, but the Secretary was instructed to issue circulars to gentlemen in and out of the Parish as soon as he had got the Prize Lists, and solicit donations to the Show. Meetings are also to be held at Morant Bay, Seaforth, and White Hall, so as to create interest in the matter. The local Show Committee has also been ap-

pointed to collect funds. The spot selected for the Show is situated just opposite the Banyan Market. It is central, spacious, and easy to reach, and the thanks of the Committee are due to I. J. Mordecai, Esq., of Serge Island Estate, for his kindness in allowing the selection of such a beautiful spot. The Prize Lists have since arrived and are being distributed.

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ST. PETER'S—The regular meeting of this Branch was held at Petersfield schoolroom on Saturday, 25th August. There were present: Messrs. J. T. Turner, President; W. Cradwick, Travelling Instructor; James Williams, Vice-President; J. Edward Simms, Secretary; W. Leslie, Jas. Fairclough, Geo. Cunningham, C. E. Thompson, Jas. Petgrave, R. S. James, J. A. Tate, R. A. Blake, J. R. Wheatle, Samuel Murray, Francis Nickle, and Mrs. Plummer. On behalf of the members present, the President gave a word of welcome to Mr. Cradwick, who responded in his usual way, and proceeded at once to analyse matters re the forthcoming Paradise Show. He pointed out that there would be an alteration in the Prize List in the classes of horses and cows. Large proprietors or pen-keepers would pay fees, and, therefore, receive large prizes, while small settlers would pay no fees and, of course, their prizes would be smaller. No fees at all would be charged to small settlers,—that is, persons owning not more than thirty acres of land each. After encouraging the members to do their best to make the Show a successful one, Mr. Cradwick wound up by asking those present to state their ideas about the holding of the Show. Mr. Wheatle asked how would they find out the person who had 40, 50, 70 or 100 acres? Who was going to take the job to find that out? It was pointed out that the matter would be further considered. Mr. Tate asked where would the prize money be paid, as it entailed much trouble and waste of time to travel all the way to Sav-la-Mar for the sake of 2s. or so. Mr. Wheatle then proposed, and it was carried unanimously, "That this Society urges on the Sav-la-Mar Society the necessity of paying all small settlers' prizes on the day of the Show, as this Society is strongly of opinion that this would greatly encourage small settlers' exhibits to compete at the show by saving them trouble and expense in travelling to Sav-la-Mar on some other day." Mrs. Plummer here gave her experience on the judging at shows. She told how it encouraged one to take more care and interest in cultivating his or her crops. She insisted that there should be no partiality in the judging, and no uncalled for remarks, as it tended to cripple the interest of exhibitors, and cause many to give up competing at the show. Messrs. Cradwick, Wheatle, and Williams spoke, voicing the sentiments of Mrs. Plummer. Mr. Wheatle then proposed, seconded by Mr. Blake, and unanimously carried: That this Society urges on the committee of Paradise Show the necessity of keeping all persons, even the President of the Society, except the Judges, the Committee-man appointed to wait on the Judges, and the Secretary of the Show, out of the ring or the shed while judging is going on. This Society trusts that the Committee of the Paradise Show will take every precaution to prevent any but *bona fide* small settlers exhibiting in the small settlers' class. The Secretary was requested to write to the Secretary of the Parent Society asking what must the members of the St Peter's Branch do to be entitled to the use of the stallion. It was unanimously agreed that the next meeting be held on the fourth Saturday in October.

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THOMPSON TOWN.—The regular meeting of this Branch came off at the Thompson Town schoolroom on the 14th September. The President, Mr. J. B. Morrison being absent, Mr. T. D. Baillie, Vice-President, occupied the chair. The following members were present: Messrs. W. McLaren, D. McKenzie, J. Saunders, W. Reid, H. Peck, D. Ellington, T. D. Baillie, and the Secretary. The minutes of the last meeting were read and confirmed. A discussion arose respecting the different classes to be exhibited at the coming Show on the 20th December, 1906. It was moved by Mr. W. Reid, seconded by Mr. D. McKenzie and unanimously carried, "That cows and pigs be placed on the list for prizes. Cows at 4s., 2s., and 1s., and pigs at 2s., 1s., and 6d., being 1st, 2nd, and 3rd prizes for each. It was agreed to adopt the new tickets introduced by Mr. Cradwick, and to thank him for its introduction. It was moved by Mr. W. McLaren, seconded by Mr. T. D. Baillie and carried, "That it is the feeling of this Society, that the Parent Society be approached, asking not to remove

Mr. W. Cradwick, Travelling Instructor, at this juncture ; while his teachings are just being understood, and he is just winning the confidence of a timid and suspicious people." His removal would mean a setting back of everything, and the death of several junior Branch Societies. We need more of his sound instructions. We would prefer to hear that his stay among us is to be six years instead of three months. Since Thursday last there has been incessant raining accompanied by gusts of wind. The rivers are filled with water, and the roads are very bad, especially that leading through Blackwoods to Mount Hindmost. The bridge which gave way with the Revd. G. Turner and his horse nearly two months ago is still in bad condition, also a breaking away of the road near one Mrs. Austin's gate. If these are not looked after in time, the Government might have to spend a few pounds for damages. Hundreds of taxpayers use this road.

CORRESPONDENCE.

Ashby Hill, 24th July, 1906.

Re articles on Pigs in this month's Journal, I was just thinking myself that though Col. Pinnoock's scheme was good and ought to be patronized, he would not get, just yet, the right sort of hog for bacon. My reason, however, differs from yours in this particular, *i.e.*, we have not got "the right breed of pigs" as you state!

I was under the impression (from practical knowledge of the bacon industry in Canada), that the bacon-hog could only ordinarily be chosen from Yorkshires, Tamworths, and to a lesser extent Berkshires, these last being "dual-purpose" hogs,—chiefly, however, the first two, neither of which seem to thrive in Jamaica. Poland China are *not* recognized in Canada at least, as bacon-hog, but as pork-hog of the corn belt of the U. S. A.

What you state about food I entirely endorse. I write this not to criticize, but rather to do my little in encouraging the efforts of the gallant Colonel, and to put would-be patrons on the right track.

I think if Tamworths would thrive here, they would be the proper bacon-hog for our climate. I might add that by selection some native breeds would prove useful, as no longer than this day, I saw what to my mind was an ideal bacon-hog, good length of sides, etc., and which was a creole hog.

Yours truly, L. A. CUNNINGHAM BROWN.

[The Poland China Pig happens to be the breed used in the Corn States, and corn is a one-sided food, making fat hogs or lard hogs, but when a Poland China Pig is dairy fed, it makes a fair bacon pig, and in several of the feeding experiments has given better results than the pure Berkshire.—Ed.]

Stony Hill, 1906.

SIR,—Can you tell me of any way of destroying house lizards other than the broomstick? We are worried with them, chiefly with croaking lizards, which though harmless are very unpleasant. An answer in the Journal will do.

C N.

[We shall be glad to hear from any of our readers on the subject —Ed.]

SHOWS TO BE HELD.

The following Shows are arranged :—

Santa Cruz, 9th November.

Manchester,—Kendal, 28th November.

Appleton, 28th December, 1906.

Savanna-la-Mar, 1st January, 1907.

Montpelier, 28th February, 1907.

Christiana, — March, 1907.

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No. 11.

BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 18th October, 1906, at 11.30 a.m. Present :—Hon. W. Fawcett, Deputy Chairman, presiding ; Hon. L. J. Bertram, and R. P. Simmonds ; Messrs. D. Campbell, C. A. T. Fursdon, R. H. Hotchkin, E. W. Muirhead, and the Secretary, John Barclay.

An apology for absence was submitted from Mr. J. R. Williams, and Mr. J. Shore, whose public engagements prevented them from being present.

Minutes.

The minutes of the previous meeting having been published in the current month's Journal, were taken as read and confirmed.

Instructor.

The Secretary submitted the following report of the Instructors' Committee :—

I beg to report that a meeting of the Instructors' Committee was held this morning at 11 o'clock, to consider the appointment of an Instructor for the Western District. Present :—Hon. W. Fawcett, presiding ; Hon. L. J. Bertram, Messrs. D. Campbell, C. A. T. Fursdon, and E. W. Muirhead. Apologies for absence were intimated from Mr. Shore and Mr. Williams.

The Secretary read letter from Mr. F. deValda, who was appointed at last meeting of the Board, regretting that he could not undertake the work, because on consideration, he found that the expenditure entailed would probably be more than the salary offered.

The Committee considered twenty-four applications for the appointment, and beg to recommend the appointment of Mr. H. D. Mennell, Maggoty, Siloah, who will live at Darliston, right in the centre of the district, and so can undertake the work economically. He has been strongly recommended by several well-known gentlemen, and has suitable experience to undertake the work. The appointment will be made on the same terms as the other instructors, viz., three months' notice on either side.

JNO. BARCLAY, SEC.

It was resolved to appoint Mr. Mennell on the usual terms, viz., three months' notice on either side.

The Secretary read the following letter from the Colonial Secretary's Office :—

No. 8331-9806.

Kingston, 29th September, 1906.

SIR,—In reply to your letter of the 21st inst., I am directed to state, for the information of the Board of Management of the Jamaica Agricultural Society, that it has not yet been settled from what date the payment of Messrs. Elder, Dempster & Company of £500 a year for Agricultural Instructors should be made. In these circumstances, the Governor is not now in a position to inform them how the amount accumulated before the payments under the new arrangement for Instructors begun, will be dealt with.

T. LAWRENCE ROXBURGH, Actg. Col. Sec.

The Secretary read the following letter from the Colonial Secretary's Office, *re* the Shorthorn Bulls presented by Sir Alfred Jones :—

No. 8477-9883.

Kingston, 4th October, 1906.

SIR,—In reply to your letter, dated 24th September, No. 1872, I am directed to say that the Governor will be glad if the Board of Management of the Agricultural Society will act as they may think best in regard to the arrangements for the services of the bulls sent out by Sir Alfred Jones. His Excellency is willing to leave the management of the matter to the Board, but he hopes the Board will be careful to see that the expenditure which may be incurred is such as can be met from the vote to the Society granted by the Legislative Council.

ROBT. JOHNSTONE, Acting Assistant Col. Sec.

He was instructed to thank the Governor for placing the bulls in the hands of the Society, and say that the Society could only pay the expenditure incurred already so far as the allocation of £5 on their estimates for bulls could go, and the Government would require to be responsible for the balance.

The Secretary submitted the following letter *re* the pedigrees of the bulls :—

Albion Chambers, Small Street, Bristol, 25th Sept., 1906.

SIR,—I now have pleasure in sending you the pedigree of the bulls. My instructions from Sir Alfred Jones were to obtain two strong, well built, young bulls, and the two sent are well bred, from a good strain, the breeder's object being to produce both milk and beef. I have no doubt they will render a good account of themselves.

ALBERT FORD.

"Henbury Beau," red, calved August 14th, 1905.

Sire, Beau Brummel, 82838 (H.B. Vol. 49).

Dam, Rose of Westmoreland 4th, by Hermiter, 77577.

g. d., Rose of Westmoreland 2nd, by Alexander 3rd, 73951.

3 d., Rose of Westmoreland, by Furbelow Duke 6th, 55767.

4 d., Rose of Chewton 2nd, by Lord of the Forest 5th, 51623.

5 d., Rose of Chewton, by Lord Somerset 8th, 48247.

6 d., Rose 2nd, by Utility, 35841.

7 d., Rose, by Son of Starlight, 30061.

"Henbury Favourite," roan, calved September 20th, 1905.

Sire, Beau Brummel, 82838, (H. B. Vol. 49).

Dam, Anemone 7th, by Hermiter, 77577.

g. d. Anemone 3rd, by Count Windsor, 74311.

3 d., Anemone, by Alexander 3rd, 73951.

4 d., Spot, a grand Shorthorn dairy cow.

Supplies to the Canal Zone.

The Secretary submitted letter from Mr. Jackson Smith, Manager of the Branch of Labour and Quarters of the Isthmian Canal

Commission :—

Kingston, Ja., 10th October, 1906.

SIR,—In continuance of our conversation of yesterday, in reference to the shipment of ground provisions, vegetables, and fruits to Colon, I would esteem it a favour if you could oblige me with any information in regard to the quantity of the foregoing which could be supplied from Jamaica, with approximate prices. On my return to the Isthmus in the course of the next two weeks, I will be able to inform you about what quantities would be required, but in the meantime, if I were able to get some idea of the approximate cost, it would assist me materially in making up an estimate.

JACKSON SMITH, Manager.

The Secretary stated that as he knew Mr. Fursdon had been contemplating the taking up of this business, he had put him in touch with Mr. Jackson Smith, and that a scale of prices had been submitted of the products wanted which could be supplied here. Mr. Smith had intimated that, in connection with the hotels they were establishing, they would probably require to feed two thousand men with the higher grade of products, in addition to twenty thousand labourers for whom a lower grade would do, also that they proposed to establish livery stables in connection with their hotels, and might require horses from Jamaica. On behalf of the Society he had promised all the assistance its organization could give in keeping the country in touch with its wants.

Mr. Fursdon said that it was possible that Jamaica could become the market-garden for the Isthmus during the building of the Canal. It must be distinctly understood, however, that it was not the case that supplies must be bought here, and that they could not possibly be got elsewhere. It was not so, but it would be convenient to get supplies from Jamaica, if they could be grown suitably. There was a certain allowance to feed each labourer, and if Jamaica could provide fruit, vegetables and provisions generally, sufficiently cheap to enable the Manager to handle the stuff within the limits of that allowance, the Canal Commissioners might require large quantities. He would be glad to hear from parties willing to cultivate and supply good products regularly.

The Board agreed that the matter was an important one for the Island, and that the Society should do its best to help in whatever way they could.

Regulations re Meat Inspection.

The Secretary submitted the following letters from the Colonial Secretary's Office :—

No. 8552-9810.

6th October, 1906.

SIR,—In reply to your letter, No. 1820, of the 24th September, I am directed to observe that if the slaughter and sale of beef of cattle dying from disease were common in Jamaica, and that fact was within the knowledge of such persons as are on the Commission of the Peace, the Governor would expect to find abundant evidence of it in prosecutions for breach of the law.

2.—If the general public be so callous as to disregard what you describe is a common practice, and even if Justices of the Peace fail to prosecute when

facts are known to them, there would be reason to fear that Inspectors and Supervisors of Slaughter Houses, if chosen from the same public, might exhibit equal apathy.

3.—At present in all Parish towns, save four, there are regular Slaughter Houses and inspection of cattle for slaughter.

T. LAWRENCE ROXBURGH, Acting Col. Sec.

No. 8529-3807.

Kingston, 5th October, 1906.

SIR,—In accordance with the request made in your letter, No. 1821, dated the 24th ultimo, I am directed to forward to you a copy of a return furnished by the Collector General showing the value of, and duty paid on, fresh meats imported into the Island during the year 1905-1906.

2.—I am at the same time to remind your Society that duty is paid on the value of such meats at the port of shipment.

ROBT. JOHNSTONE, Acting Assistant Col. Sec.

Return showing the value and duty paid on fresh meats imported into the Island during 1905-1906,

Value £2,436	0s.	0d.		Duty £369	2s.	3d.
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The Secretary was instructed to reply that the Magistrates act voluntarily, and would, no doubt, do their duty strictly, but the information they received on the matter in question was at second-hand, and might be difficult to prove, owing to the apathy of the Police on the subject; and the Police did not, possibly, exert themselves in the matter, because the most obvious official to appeal to, to say whether meat was unfit for human consumption—the D.M.O. of the District—was not appointed to do so.

The Secretary submitted letter he had received from the Board of Agriculture and Fisheries, London, as follows:—

No. A. 9432-1906. 4, Whitehall Place, London, S.W., 24th Sept., 1906.

SIR,—I am directed by the Board of Agriculture and Fisheries to advert to your letter of the 23rd ult., and to transmit, for your information, the enclosed copies of the Diseases of Animals Acts, 1894 to 1903. The expenses incurred by the Board in Great Britain are defrayed in the manner prescribed by Sections 17 and 18 and Second Schedule of the Act of 1894. The expenses of a local authority are defrayed out of the local rate in accordance with sections 40 to 42 and 60 (Scotland) and the Second Schedule of that Act. With regard to the manner of defrayment of the expenses incurred in Ireland I am to refer you to Sections 71 to 73 and the Second Schedule of the Act of 1894.

R. H. KERR, Asst. Sec.

And from the Imperial Department of Agriculture as follows:—

Imperial Department of Agriculture for the West Indies,
Barbados, 22nd September, 1906.

SIR,—In reply to your letter, dated 23rd August, 1906, asking for information upon Contagious Diseases (Animals) Laws in the West Indian Islands other than in Jamaica, I have the honour to state that laws dealing with contagious and infectious diseases of cattle and other animals are in force in British Guiana, Trinidad, and Tobago, Grenada, St. Lucia, St. Vincent; and in Antigua an Ordinance was passed in 1900 which "does not come into operation unless and until the Governor shall signify by proclamation that it is Her Majesty's pleasure not to disallow the same." In Barbados, paragraphs dealing with glanders or farcy are included in the Public Health Act of 1898.

2.—These laws generally include cattle-plague, contagious pleuro-pneumonia, anthrax, glanders, splenic fever, foot and mouth disease, variola ovina, sheep pox, sheep scab, foot rot, tuberculosis, swine fever, variola vaccina, rabies, surra, and make provision to include any other disease to which the ordinance shall be made to apply.

3.—In British Guiana, Trinidad and Tobago, and Barbados, Government Veterinary Surgeons have been appointed to see that the laws are enforced. All imported animals are examined before being allowed to enter the colony (animals from countries known to be infested with contagious diseases can be prohibited landing by special proclamation by the Governor); and all cases of diseases in the colony, except Barbados, where the duties of the Veterinary Surgeon appear to be limited to examination of imported animals and inspection of meat for slaughter, are examined and reported upon. The salaries of these Veterinary Surgeons are voted by the Legislature. In St. Lucia the term Veterinary Surgeon throughout the ordinance means a duly qualified Veterinary Surgeon for the colony, and pending such appointment, means the Medical Officer of the district concerned, which shows that the administering of the provisions of the ordinance is included in the duties of the district Medical Officers, whose salaries are voted by the Legislature. The same would apply to Grenada and St. Vincent. In St. Vincent, however, owing to an outbreak of anthrax, a Veterinary Surgeon has recently been appointed to help stamp out the disease, his salary being provided for by a special vote from the "Eruption Fund," which was subscribed in the United Kingdom.

4.—In British Guiana, Tobago, and Trinidad, Grenada, and St. Lucia, the different Governors may appoint such inspectors, officers and other persons for the carrying out of the provisions of the ordinances, and of all orders made thereunder, as they consider necessary; the expenses being provided from funds provided for that purpose by the respective Legislatures. In Antigua, the Governor has the power to issue a warrant to the Treasurer for the payment of salary of any inspector of animals appointed, and for the payment of other necessary expenses that may be lawfully incurred. In St. Vincent, the administering of the ordinance appears to be carried out by the Police Authorities and by the District Medical Officers.

5.—In conclusion, I would refer you to the following ordinances:—

British Guiana.—No. 18 of 1869. No. 4 of 1892. No. 22 of 1899. No. 19 of 1904.

Trinidad.—No. 154. No. 143. No. 31 of 1905.

Grenada.—No. 8 of 1905. Anthrax Order of 1905.

St. Lucia.—Contagious Diseases Ordinance of 1906.

St. Vincent.—The Cattle Diseases Prevention Act of 1869, brought up to date in March 1906.

Antigua.—No. 11 of 1900

Barbados.—No. 3 of 1898.

From which any further information desired may be obtained.

I have the honour to be, Sir, your obdt. servt., J. P. deALBUQUERQUE,
For Commissioner of Agriculture for the West Indies.

He was instructed to circulate the information supplied, and publish a digest of this, and the information already received, in the Journal.

Elder, Dempster and Co., Contract.

The Secretary submitted letter from the Colonial Secretary's Office in connection with the Elder Dempster matter as follows:—

No. 8599-9920.

Kingston, 8th October, 1906.

I am directed to acknowledge the receipt of your letter, 1882, of the 26th ultimo, stating that complaints have been made respecting the arrangements for the conveyance of oranges, grapefruit, etc., shipped on the Elder Dempster Steamers by private persons, and, in reply, I have to refer you to the letter from this Office, No. 11009/S.S. 351, dated the 25th November, 1904. A copy of your letter under acknowledgment will, however, be sent to Messrs. Elder, Dempster through their Agent in Jamaica.

2.—I am to add that, on receipt of a reply from the Contractors, the Governor will consider whether he should exercise the powers given him in Section 18 of the Contract, and cause the steamers to be inspected as suggested in your letter.

ROBT. JOHNSTONE, Acting Assistant Col. Sec.

The Secretary stated that the letters referred to only dealt with the measurements of the ships, but did not deal with internal arrangements.

It was resolved to await the result of the letter forwarded to Elder, Dempster & Co.

Exportation of Mules and Horses. The Secretary submitted letter from Colonial Secretary's Office with regard to the exportation of mules and horses as follows :—

No. 8294-9298.

Kingston, 28th September, 1906.

SIR,—I am directed to transmit herewith, for the information of the Jamaica Agricultural Society, a return of horses and mules exported from the Island during the last ten years showing the value each year.

ROBT. JOHNSTONE, Acting Assistant Col. Sec.

Return of Horses and Mules exported from the Island during the last ten years, and value.

Year.	No.	Value. £ s. d.	Year.	No.	Value. £ s. d.
1896-97	25	679 0 0	1901-02	115	1,982 0 0
1897-98	8	179 0 0	1902-03	65	1,040 0 0
1898-99	46	973 0 0	1903-04	50	1 823 0 0
1899-1900	42	721 0 0	1904-05	96	1,696 10 0
1900-01	53	559 15 0	1905-06	237	3,408 10 0

Medals for Cotton-growing. The Secretary submitted letter in connection with the competition for medals for the best cultivations of cotton offered by Sir Alfred Jones as follows :—

Yallahs P O., 27th Sept, 1906.

I beg to inform you that I am engaged in planting out from this week two separate plots, which will be not less than two acres each, with Sea Island Cotton Seeds, procured from the Imperial Department of Agriculture through your Society. One field is situated at the "Bar Lands," near Yallahs Bay, and the other at Phillipsfield, within the same district, and are both intended to be entered in the competition for the prizes offered by Sir Alfred Jones. Planting could not be done as early as anticipated in consequence of the hot dry weather which prevailed until the latter part of this month, but I shall endeavour to close up by the 6th October, relying on the refined vegetation of these low lying lands to get the crops to maturity in good time.

J. M. LEWIS.

He was instructed to note this.

Commercial Agent. The Secretary submitted letter from Mr. A. Markland Taylor, a native of Jamaica, now resident in Philadelphia, saying that he would be glad to act as Commercial Agent for Jamaica, if the Government would make a small allowance, and asking that his letter be put before the Governor. The Secretary was instructed to forward the letter to the Governor.

Instructors' Reports. The Instructors' Reports were submitted, and the Secretary read extracts showing the time Mr. Arnett had devoted to St. Ann, and his programme for

the judging of the Prize Holdings Competition, which was to begin on the 22nd October, and the result of Mr. Palache's first visit to St. Elizabeth under the new arrangement for instructors.

New Members. The following new members were elected :—

W. Telfer, Christobal, Canal Zone; The Griffin Bros. Company, Little River, Jackson Ville, U.S.A.; Miss A. Patterson, c/o J. H. Scarlett, Water Valley, Albany; Alfred M. Smith, 280 Broadway, New York; W. D. Hill, Windsor, Falmouth; Jackson Smith, Canal Zone.

The meeting adjourned till Thursday, 15th Nov., at 11.30 a.m.

HORTICULTURAL NOTES.

Artichokes (Jerusalem) are easy to grow here. Small pieces of the tubers are planted out in the same manner as potatoes. They can grow on very sandy soil, though a good loam is best, and will stand a lot of dry weather. They should be planted in rows two-and-a-half to three feet apart, about two feet apart in the rows.

Cucumbers should be planted six to eight feet apart in raised hills, planting eight seeds in each hole, and thinning out to leave four. A quart of manure in the hill will give the young plants a good start, and a heaped fork of strong manure spread over and around the hill will ward off the effects of a spell of dry weather on the young plants.

Melons require very rich soil, and if the soil is made loose their roots will penetrate to a great depth, and this will enable them to stand dry, hot weather. They can be raised over all the low-lands, planting in November and December, and they will come in February and March. They should be planted in hills eight to twelve feet apart, according to variety. Manure in the hills, and a strong manure over and around the hills, will give the young plants a quick, strong start.

Musk-melons can be planted closer.

Ants are very formidable to nearly all vegetable seeds, therefore it is safer to plant in boxes placed upon frames, and transplant whenever the young plants are big enough. In the country where tar is not handy for tarring the posts on which the boxes are set, castor oil can be used, with a little kerosene oil put in it, in proportion of one to four. The new insecticide, called Vaporite, which is in the form of a coarse sand, sprinkled round the posts, or over the soil, will be found profitable in result. It kills grubs of all kinds.

Melons, Cucumbers, Tomatoes.—If these products were raised so that they could bear from December to March, and if they were

grown of the right type and shipped in the way the markets want them, we are convinced a handsome business could be done in the London market. Tomatoes have to be packed in small cases, four of which are bound together, making one package, containing about 50lbs. Melons should be shipped in flat cases, one row deep only.

If anybody will take up the shipping of water coconuts in cases during the summer, not of too large a size, say two dozen to the ordinary orange box, they would make a handsome profit.

Carrots are always in demand for the feeding of race-horses as well as for household use, and ought to be raised in larger quantities by our friends in the Port Royal Mountains.

Sunflowers are handsome plants with handsome blossoms, and besides beauty, are of great utility. Planted round houses, especially where the soil is heavy and damp, they dry and sweeten the soil, hence are good in all malarial districts. Then bees find an abundant supply of nectar in the flowers, and the seeds are good food for fattening poultry, especially in the cool uplands where coconuts are not cheap, and the spring nights are often cold and chilly. We strongly advise every one to plant sunflowers in the garden. We have a good supply of seed at 3d. a large packet, or 1lb. for 1s., post-free.

Potatoes.—Thirty barrels "Early Rose" potatoes from Nova Scotia have been received and sent out to order, and also twenty cases "Scottish Triumph" potatoes. All the potatoes were sent in fine order, but the "Scottish Triumphs" were especially fine, no very big ones, not a jumble of different sizes, large, medium size, and small, but all selected seed size. There is no doubt whatever that uncut potatoes are better for seed, resulting in less rot, and larger crops than cut sets; and all up-to-date growers use what is now designated "seed size." To plant a whole large potato is waste; the many eyes tend to produce a crowd of stalks and crowds of small potatoes. If cut into sets there is the danger of rot from the cut surface, there is a considerable drying out of moisture, and the plants do not get such a good send off as from uncut potatoes, and so long as the small whole potato is not too small, but large enough to start the roots and start the plant above the soil, that is all that it is called upon to do. We have found large whole potatoes sending out five or six shoots, even though all the eyes were rubbed off but one, the others often starting again, and before the potato was nearly exhausted, the rootlets were feeding. Then after taking up the crop of two or three large potatoes and quite a quantity of small potatoes we found the seed potato almost as sound as when planted. This does not happen with the seed size of potatoes. There is something, however, in the different varieties tested; they do not always behave in quite the same fashion.

POULTRY NOTES.

TURKEYS.—More turkeys have been bred this year than any past year we have knowledge of; yet with the great influx of tourists expected, we rather think the demand will be greater than the supply. Very little fresh blood is imported and much in-breeding is permitted, and degeneracy is quick. We are making importations of turkey hens, of good weight, not under 17lb., whereas the average here is barely 9lb. This is better than to import a 25 to 30lb. turkey cock, as several have proved; he is too big for the hens. It is better to import good hens occasionally.

DUCKS.—On the other hand ducks will be scarce; they are never in good enough supply. The trouble is that the Muscovy Duck which is hardy and easily raised, has its disadvantages in not being a good layer, in taking long to grow, and in having to be used young to be tender. The other breeds of ducks tried—Aylesbury and Pekin,—chiefly have not been successes. We believe in the Indian Runners, but they are small, and to get size would have to be crossed with a dark coloured duck, say the Rouen. The resulting bird would be a treat for table and good layers also.

FOWLS.—We estimate that there will be a scarcity of fowls and eggs, but can hardly understand how breeders should have cause to report bad luck this year in raising chickens. We, ourselves, set this down as a fairly good year. We trust, however, that everybody will now set their house in order and prepare for next season, guarding against any faults in their system, discovered by experience. The requirements are:—Good, sound hens to breed from, a strong and active male as a sire, a simple, well ventilated house to shelter stock at night, especially in wet climates,—for turkeys this is not essential, and for guinea fowls of no use, as these birds retain very wild instincts, and take badly to a house. An open shed so long as it has a roof to keep off the heavy rains, is quite sufficient. Then again, overstocking is a common fault, trying to keep or breed too much stock, and the keeping of turkeys, ducks and hens together in a place of too small capacity. Six good laying hens are almost enough for most people for breeding. Clear out your yard of all old hens, except any remarkable specimens of good layers or good mothers. Pick the most likely of your pullets and your old hens for your own use; from these, when they lay, pick the best four to six, and use these as your stock birds, sitting their eggs only.

PLANTING KOLA.

THE following notes on Kola-planting may be useful:—The nuts must be picked when they are quite ripe, *i.e.*, when the pod is opening naturally on the tree, if they fall from the pods to the ground so much the better.

They must be planted while they are quite fresh, the least exposure to sun or dry air causes them to split open, after which they will not grow.

In fact they are best planted with the white covering on them, provided this is treated with kerosine and ashes, as recommended for garden seeds, otherwise rats will carry them away in order to get the sweet mucilage on the white covering.

A bed should be prepared in the same way as recommended for cocoa seeds, and the seedlings should be treated in the same way, except that the seedlings should be taken out of the bed as soon as they have made a sprout two to four inches in length.

Do not wait for them to put out leaves, otherwise the tap root which grows very rapidly will be of such a length that they are apt to get broken in removal.

They can be transferred from the bed into bamboo pots or direct to the field where they are to grow.

The seeds may also be planted directly out into the field, if treated in the same way as recommended for cocoa seedlings planted out into the field.

It is even more necessary to beware of deep planting with kola than with cocoa, in fact they will grow quite freely, except in very dry weather, if simply laid on the surface of the soil, and covered with a few inches of dry grass.

Kola is perhaps hardly a tree to be planted as a regular crop, but as a shade plant, and more especially as a wind break, which will at the same time yield some revenue, there is perhaps no more useful plant; it is a tough hardy plant, not easily broken by wind. In fact of the useful trees, it recovered from the effects of the late hurricane quicker than any tree.

In fairly good soil, if the lower limbs are constantly pruned off, it will in five or six years grow to such a height as to be a useful shade-tree for cocoa and coffee, and, at the same time, commence to bear, and yearly after become a source of revenue.

W. CRADWICK.

CARAVONICA COTTON.

YOUR favor re "Caravonica" cotton to hand. It seems to have done so well with me that I think I would rather try it on a larger scale than sell the seed. Of course I will spare you a few if you request it for experiments.

I enclose a little of the cotton from the "silk," which has done better than the "wool." The majority of the former trees stand about seven feet high, and about six feet at the base, *i.e.*, three feet each way from the stem.

NOTE.—Planted, 22nd May, 1906.

First bloom, 23rd August, 1906.

First boll ripened, 23rd October, 1906.

As soon as a few more bolls ripen I will send you a few.

OSCAR A. M. FEURTADO.

COFFEE CULTIVATION IN BRAZIL.

BRAZIL is the largest coffee-producing country in the world. It produces more than all the rest of the world put together. It is the great factor in the price of coffee produced elsewhere, and as all interested in coffee here should be well informed as to the condition of the world's coffee trade, we present the following article to our readers for their information. The article also shows that the coffee planters of Southern India do not sit down apathetically under low prices without bestirring themselves to find out all about their business, so as to be able to shape their future action;—

The coffee planters of Southern India, wishing to know exactly how their industry stood in relation to that of Brazil, the Government of India in April, 1905, at the instance of the Government of Madras, sent a Despatch to the India Office asking for information regarding the Brazilian coffee industry. Very detailed questions were asked regarding labour and wages, cultivation, area, soil, and forests; the system of cultivation, the type of trees; the raising of bye-products, shade on estates, abandonment of old and opening up of new estates, etc.; crops and the curing of coffee; diseases, and pests; finance, and cost of production; climate, and physical features of the coffee districts; transport and duties. This Despatch was transferred through the Foreign Office to the British Minister in Brazil, who distributed the list of questions to the various Consuls, in order that they might make personal enquiry into the subject. The answer to these questions have now been collected and issued as a white paper by the Indian Office.

Transmitting the replies from the Consuls, the British Minister in Brazil, in his Despatch dated the 6th February, 1906, says:—

“The difficulty of obtaining trustworthy information of a statistical nature in this country is sufficiently recognized to render all explanations of the inability to furnish full and exhaustive reports from the various Consular districts unnecessary. The enormous area of the country, the difficulties of communication, and the expense of travelling preclude the possibility of acquiring minute information which could only be obtained by a personal visit to the numerous coffee planters scattered throughout a large portion of Brazil, except by experts specially appointed for the purpose, without other occupations to attend to, and with considerable funds at their disposal for travelling purposes.”

The British Consul-General at Rio de Janeiro writes of his district:—“Coffee planting is the principal industry of Brazil, and coffee is the principal article of export. The consumption of the world is estimated at 16,000,000 bags, the bulk of which is produced in Brazil, which yields some 9,000,000 to 15,000,000 bags. The limited demand for the quantity produced caused a crisis in recent years owing to bumper crops and over-production. Since then there have been schemes to restrict production, but these have only taken effect in the State of São Paulo, in which State alone can any official statistics on this subject can be obtained. São Paulo is the principal coffee district.

Labour.—The conditions of labour are different in each locality. It may, however, be calculated that men earn about \$2 a day and women \$1, besides food, "Colonials" or those labourers established on the estate receive land and a certain number of trees in lieu of wages; others have an interest in the crop. The labour is chiefly Italian and negro, and is bad and scarce. Immigration is required, but has been so badly treated that it is discouraged. Owing to extravagance the planters are mostly in difficulties and do not pay wages when due, or the men are fleeced by the truck system. It is possible for the labourers to live by the cultivation of their own plots. The work on the estate takes some nine months of the year.

Cultivation.—It is only the principal coffee districts which are comprised in the newspaper reports; and there are large tracts of land unplanted and suitable for coffee, and these lands are likely to remain unplanted until the demand for coffee increases. It would probably not be practicable to obtain land for coffee-planting where restriction is in force, nor under the circumstances would it be likely to be profitable. There are extensive railways through the principal coffee districts, the rates vary but are high.

Old fazendas are abandoned and not cultivated, but coffee is picked when the trees happen to yield. When the trees no longer bear, the plantation is abandoned, and as the land is privately owned it does not revert to Government, nor is it taxed. Coffee trees yield berries up to 30 years. After bumper crops the next crop or two is smaller. Land in São Paulo in some districts produces three or four times as much as that in Rio de Janeiro. There does not seem to be any extension of planting, and that planting is to replace those trees that go out of bearing. There is not much planted that has yet to come into bearing. Trees begin to bear three years after planting. In Rio the land is hilly, and in São Paulo undulating, and flat, with a red soil. There is some heavy forest and much scrub, and the undergrowth is very thick, with creepers, thorns, and grass; heavy timber is found in the forests.

The land is not manured, only weeded. No pruning, trees allowed to grow free. No artificial or other shade used.

When planting out one plant is put in each pit. Bye-crops are the exception, and then generally consist of maize. No manure is used. No Government scientific help is given to planters. Abandoned plantations have become so from old age and want of cultivation, and are hopelessly gone. The only cultivation bestowed on coffee is keeping the trees free of weeds. Coffee trees ten years old are in their prime.

Crops and Curing.—A tree takes three years to come into bearing, and continues for thirty years. There are three blossomings a year, in August, September, and October—and if these fail and there is rain there will probably be a fourth.

The crops are picked carelessly, the branches or twigs being stripped by running the hand down. Coffee is cured either by drying on a drying ground or is pulped. The yield in São Paulo is calculated at 200 arrobas (the arroba being 32½ lb.) the alqueire of land. Full grown trees are affected to a certain extent after a heavy crop. Ants damage the trees.

Financial.—The system is by advances on crops and mortgage at 12 per cent. The present low prices leave a profit. The lower the exchange the more milreis are received as the price of coffee, so these crops represent gold. The higher the exchange the less profit is made, as expenses are paid in milreis and have not altered.

The financial condition of the majority of the estates is bad, and the general opinion as to the future of the industry is gloomy. No government financial help is yet given. It is not likely that India can compete with Brazil in the production of coffee whilst the supply exceeds the demand.

Climate and Physical Features.—Tropical, steamy, relaxing, but the climate depends on the altitude. No proper record of the rainfall in the different districts. The country is hilly, broken and overgrown.

Transport.—Extensive railroads run through coffee districts, and connect with principal ports. F.O.B. expenses come to about \$3 per bag, including price of sack. Sea freights to London about 50s. and 2½ per cent. primage. A ton consists of 17 bags.

Duties.—Export duties in Rio de Janeiro 8½ per cent., in Minas Geraes 9 per cent. Information obtained is often conflicting owing to the lack of reliable official returns, and it is difficult to ascertain the lowest price at which the production of coffee would leave a profit, as so much depends on the financial position of the planter and the condition to which the plantation may have been reduced by neglect or through lack of means. As a rule the planter has to calculate a profit after paying off the interest on borrowed capital.

In Santos there is very little suitable coffee land left unclaimed, except in the far interior, where it is left untouched on account of unremunerative prices, the want of railways, and the incident of the Government planting tax. All estates are owned by individuals. It is intended to extend the railways to the interior as soon as the growing of coffee becomes profitable. The estates in Santos were mostly opened from 10 to 12 years ago. The trees have recently come into full bearing, and there has been much over-production, chiefly in the State of São Paulo. Some of the estates show signs of exhaustion, owing to heavy crops and to lack of fertilizers. The virgin soil gives enormous crops for the first year, but as nothing is put back into the soil its powers become exhausted. The cultivation of bye-products, maize, and beans, between the trees, tends to still more exhaust the ground. The average production has fallen off, and future crops promise to be smaller than former yields. Owing to the planting tax no extension is going on, and there is some abandonment of exhausted plantations. No new planting has taken place for three years. In São Paulo the yield from the new vigorous lands has been very great. The best lands yield 80 to 100 cwt. of clean coffee per 1000 trees. (700 trees go to the acre.)

The average yield for the whole country is, however, calculated to be not more than about 15 cwt. The ground is only weeded, no digging being done; neither is there any manuring. Pruning is done in a very primitive way. Topping is not practised. Coffee is grown unshaded. The trees are about 12 to 16 feet high, very

thick and bushy. They are planted, three to a pit, at intervals of four yards. They are nearly all of the *Bourbon*, and what is known as *café commun*; the former gives a large bean. Brazilian trees have all been imported from other coffee-producing countries, but have lost all their distinguishing characteristics. The trees come into bearing at from 3 to 4 years old, and are at their best between the ages of 10 and 15. When the coffee is being gathered the trees are stripped of everything, ripe and unripe. A great deal of ripe coffee falls on the ground and is gathered therefrom. The coffee is sometimes pulped, but is mostly sun-dried on brick platforms. There is no disease, the trees being too new, and pests are unknown. The estates, which are mainly owned by private individuals, are financed by Commission Agents in the port, who make loans for one year against which they are secured by mortgage on the crop and also by mortgage on the estate. The interest is high, 12 per cent. being the rule. The financial condition of most of the estates is unsound, 95 per cent of them being mortgaged to above their present value. The Government affords the planters no financial help. There are good railways to the coffee districts, but owing to excessively high railway rates, the cost of transport is enormous. Exclusive of export duty, the cost of carriage from plantation to steamers averages about 10s. per cwt. The export duty on coffee from Santos is 11 per cent, *ad valorem*. There are heavy import duties exceeding sometimes 100 per cent, *ad valorem*. The freight to London is 30s. *plus* 5 per cent. per ton of 1,000 kilos."

COCOA AND COFFEE CULTIVATION IN HANOVER.

BY WM. CRADWICK.

I sent you at the end of 1905 some figures regarding Mr. Woollery's cocoa, at Kendal, in Hanover. I visited Mr. Woollery again on the 20th June this year, and I was exceedingly pleased to see the way in which his cocoa plantation, for it really must be called such now, is progressing; the old trees which we first took in hand are bearing heavy crops regularly, twice every year. Since my first visit to him he has also set out and has growing over 2,000 new plants, these are all pure Criollo, and there is no sign of any disease or feebleness in them, any more than there is in the average plantations of Forastero. Mr. Woollery again gave me with a great deal of excusable pride the amount of his sales; since my last visit he had sold in dry seeds and seeds for planting from October 5th, 1905, to June 20th, 1906, from his original 63 trees to the value of £8 2s. 1½d.

He had in the house a beautiful lot of cured seeds, fit to take 1st prize at any show, and amounting in quantity to between, I think, 30 and 40 quarts. Although cautious, Mr. Woollery said we must not estimate it at more than 20 quarts, while on the trees was hanging, I think, the prettiest crop of cocoa I have ever seen;

there is always something pleasant in looking on pure-bred things, and every pod in Mr. Woollery's plantation is like the other. Then from the æsthetic point of view, there are very few crops which can look prettier than a ripe crop of Criollo cocoa, the pale gold and the rich rosy red of the pods was a sight that I have never seen equalled except by a crop of apples just ripening.

Another great point, since Mr. Woollery has kept his cocoa cleaned up and looked after, not a single pod is being eaten by rats, although no poison or traps of any kind are used.

Mr. Woollery is now exceedingly proud of his cocoa plantation, and vigorously preaches cocoa to all his neighbours, as well he might.

If the young trees in ten years time bear as well as the old trees have done since they have been rescued from oblivion, which meaneth bush, Mr. Woollery will be in receipt of an income of £400 a year. He is now thoroughly determined that he will ride in that buggy before he dies, and I sincerely hope he will.

Another very successful member of the Hanover Branch Society in the growing of cocoa is Mr. Stanley Lindsay of Dispensary, near Green Island. Mr. Lindsay will be remembered as the winner of the second prize in the Small Holdings Competition in Hanover, he is making a very strong bid for the 1st prize next time, having built a new house, fixed up fences, and what is still better, is draining and cultivating his piece of land in such a way that the young cocoa trees, which he started to plant immediately after the occasion of my first visit to him, have grown most beautifully, and are commencing to bear.

On the occasion of my last visit, Mr. Lindsay was in great distress because he had not finished cleaning up, ready for me, but the greater part which was cleaned up, was certainly a credit to any man, whether small settler or large planter. His old trees are also bearing very heavily, and are in exceedingly fine health.

Another very successful cocoa-grower, is Mr. Godfrey of Brownsville. Since his trees were first killed, *i.e.*, pruned to a decent height, and the shade thinned out, with the exception of the year of the hurricane, they have given him exceedingly fine crops. Rats have ceased to trouble them, and now that they have recovered from the effects of the hurricane, are again in first-class health.

These trees received a very severe battering in the hurricane, but they recovered, and are bearing in such a way, as to contradict the impression that the Criollo variety is devoid of vitality.

Mr. Godfrey has a large number of young plants also, some of which are just coming into bearing, the exact number I do not know, but they must be numbering into thousands.

Mr. Godfrey was winner of the 1st prize in the first-class of the Small Holdings Competition in Hanover, and I am forking him up hard now, for if he does not do his very utmost he is going to be beaten by Mr. Lindsay, and probably one or two others.

On September 13th, I paid a visit to Hopewell in Westmore-

land. I spent a very happy time there in the cultivation of Mr. Robert Graham. He was the winner of the 1st prize in the first class Small Holdings Competition in Westmoreland. Mr. Graham has a cultivation of cocoa which does him infinite credit; his trees are almost all Forastero varieties; his best piece will be three years old in January next, and are, I think, some of the finest trees I have ever seen for that age. A large proportion of them are fully 10 feet in height and 10 to 11 feet in diameter from branch to branch. These trees are the result of good care, especially in the matter of drainage.

Mr. Graham's trees are on a hill-side, and it was a very hard matter for me to persuade him (as it has been, a good many other people) that a hill-side needed drainage, but after I persuaded him to put in one or two drains, the benefit was so immediately apparent to him, that he set to work and has drains now not more than 12 feet apart; some of these are not wisely planned, but despite the deficiency in this direction, the improvement of the cocoa and bananas has been astonishing even to me.

Coffee-picking.—The coffee-picking season in the lowlands is now at its height. The importance of allowing the coffee to properly ripen on the tree before picking seems to be but faintly realized by our small settlers in Jamaica, while the utmost importance is attached to this in the large plantations in the Port Royal and Blue Mountains. The small settlers, in the western end of Jamaica particularly, display the utmost carelessness in this respect. I have seen bushels of coffee picked, in which there was not more than 10 per cent. of properly ripened berries. I have been urging on the small settlers for years the necessity of allowing the coffee to become ripe before picking, and begging them to pick a few quarts of really ripe cherry coffee, and also take an equal quantity of unripe berries, put them to dry separately, and weigh and compare the yields when dry. The usual method of picking coffee in this part, has been to seize hold of any bunch of coffee berries, having one or two ripe berries on it, and pull off the whole bunch green and ripe together.

Incessant "begging and cussing" have led to a good deal of improvement in some parts, and I lately saw coffee being picked by one of my small settler friends, in which I do not think there was 1 per cent. of unripe berries. Two arguments have been employed to bring about the change.

1.—That coffee picked ripe is of better quality. This I fear has had little weight, as I have been usually met with the retort, that they get the same price for all—good, bad, and indifferent.

2.—That ripe coffee is much heavier when dry than that picked green, and in that way realizes more money even at the same price.

This argument I am glad to say has had a good deal of weight. I think it would be well once more to urge through the medium of the Journal that in the matter of curing coffee, it is not so much the method adopted, as the way in which the method is carried

out that counts ; cleanliness and care are what is necessary. Pulp-
ing and washing, although looking a little more troublesome at the
start, save time and labour in the end, but it is doubtful, if care is
taken to dry coffee in the double husk, if the pulping method re-
sults in much improvement as far as the quality goes. If the coffee
is cured in the cherry or double husk it must have the same amount
of care bestowed on it as is necessary when pulped and washed. If
put in large heaps it will ferment too much and spoil. If allowed
to get wet frequently, while in the drying process, it will also spoil,
but if kept properly turned while drying, protected from rain, etc.,
most excellent coffee can be cured in this way. The drawbacks are,
that it takes a long time to cure, and people get tired of the care
and perseverance necessary to cure good coffee in this way ; it is
also longer before we can realize on it, and it is difficult to clean
when cured. It may not be out of place here to remind small
settlers that Messrs. Lascelles, deMercado & Co., of Kingston, under-
take to clean by machinery, sort, size, and ship coffee to England,
and sell it there. The total charges for this, whether sent to him
in parchment or double husk, being about 5s. per cwt. Small
settlers who do not live near any of the central factories, and have
no machinery of their own, but have fairly large quantities of
coffee, should enquire into the advantages of this system. Members
of Branch Societies might combine so as to ship in fairly large
quantities and thus reduce expenses.

CARE OF PIGS.

WASHING in Jordan was never a popular amusement, at least, if
we rely on history. For years I have been hearing of hog-sick, and
various complaints, and reasons why pigs die in Jamaica. I have been
forced to the conclusion that most of the mysterious deaths among
pigs have their foundations in dirt, dirty feeding troughs, dirty
house, dirty utensils in which the food is cooked, dirty water ; dirty,
half rotten food, which might perhaps not be so deadly if it were
properly, instead of half-boiled.

One of the chief causes of infection among pigs is, I believe,
wooden feeding troughs. If these could be BOILED once or twice a
week, they might perhaps be looked upon as sanitary vessels, but
as they never are, they are simply hot beds of contagion, and by
them any diseases in pigs or food would certainly be fostered, pro-
pagated, and spread.

Any food except fresh fruit and herbs should be thoroughly and
properly boiled, and the vessel in which these things are boiled,
should be kept just as clean as the vessels in which our own food is
cooked. Larger quantities of green food to pigs in confinement
must be supplied, otherwise they cannot be expected to thrive.

It is a source of great regret to me, that two of the pedigree
pigs purchased by Branch Societies in the west end of Jamaica from
Mr. Fred. Clarke, have died. These deaths can be attributed to

nothing but want of knowledge of the proper methods of pig-keeping. These methods can practically be summed up in one word—"Cleanliness." Plenty of food is also necessary; plenty of fresh air, and plenty of clean water. Given these, neither of the pigs mentioned should have died.

Another Branch Society bought one, placed it under the care of one of its small settler members; this animal also nearly died, chiefly, I think, from the causes mentioned. In May of this year it was transferred to the care of another keeper; threepence was spent on Thymol for the pig; beyond this nothing was done to him, except to give him plenty of good food, clean water and fresh air; now he is a pleasure to look on. I should say he has nearly doubled his weight. A dry, clean house is a great necessity; a filthy puddle is not a necessity, but a good bath twice a week with a little Jeyes' fluid in the water will keep the pigs free of lice, mange, and all air and skin diseases. He will not always be wanting to rub off all his skin, but by being washed in this way, will keep so sleek and shiny as to be a pleasure to the owner.

In wet districts it would appear that stomach worms trouble pigs a good deal; Thymol has proved a good remedy for these. I am not quite sure of the proper dose to give, but pigs have been dosed in the following way with very satisfactory results:—The quantity usually sold as a dose for a horse has been divided into 16 portions, and one of these mixed in the pig's food every morning until he had eaten the 16 portions; improvement in the pig after this was little short of wonderful.

Another mistake which is frequently made, is giving pigs one huge feed in the morning, very often more than he can eat; the food lying about in the troughs until middle-day, and become so sour that even if the pigs eat it, it does them more harm than good. If they do not eat it, of course it is simply wasted, which is perhaps the best thing that can happen to it.

Whatever food a pig is to get for the day should be divided into two or three meals, the latter being even better than the former; in this way, I am quite convinced, the same amount of food will do the pig twice as much good.

The pig is such a useful and profitable animal that he will pay for almost unlimited care, and it seems a great pity that he is not usually taken better care of.

W. CRADWICK.

MR. CRADWICK is exactly right in his remarks on pigs. As we have often pointed out here in speaking and in lecturing on the subject, DIET is the chief, almost the only cause, indeed, of disease here, where there is a perfect climate for pigs. The pig is not naturally a dirty animal—in fact, when confined in a small pen he shows considerable care, as far as is in his power, to make his bed in one corner, drop his filth in another, and take his food in another corner. Of course, where pigs are tied out, they are at much better advantage than in small pens, as they are constantly shifted, but unless in preparing ground for a crop to be planted, the manure is often wasted. There is no more valuable animal for manuring the

ground in Jamaica than the pig. In order to adapt pig-keeping to the situation here, where people are ignorant of the wants of animals and so careless in cleaning out fixed pig pens, and putting in clean bedding constantly, with the double purpose of keeping the pig comfortable, and making more manure, we advise our own system, which is to use movable pig pens. This is made of four hurdles, like four small gates, wired round at the corners, costing about 2s., and lasting years,—a small one for a pair of small pigs, and a large one for breeding sows or fattening barrows. These can be shifted up rows of bananas, and the pen for the small pigs can be also shifted amongst coffee and cocoa. The pigs rout up the ground and effectively fork it, the remains of the food with the bedding, if they are kept as they ought, along with the droppings, manure the ground very effectively. This pen can be shifted a space after two days, and in a year manure one acre. In order to provide shelter, half of the pig-pen can be thatched over with light sticks and thatch palm or long grass. Mr. Cradwick's remarks on the feeding of pigs are also exactly right. We have known a pig take two years to fatten on the big one-meal-a-day system, while another was ready for market in twelve-months on the three-small-meal-a-day system. In the mornings two handfuls of corn and some ripe bananas; the mid-day meal, green feeding, that is, cocoe-stalks, sweet potato slips, etc., and in the evening, boiled feeding, green bananas, cocoe heads, and so on; and if the food is changed, that is not every day the same like this, the pigs eat more and fatten quickly. Of course, the bananas used are small bunches, otherwise unsaleable. The stems of cut bananas chopped up, also keep the pigs employed and provide some feeding.—Ed.

THE VALUE OF GREEN MANURE.

And Trash of all kinds for Bananas, especially on Light Soils.

I am often asked the question, "Will bananas grow and do well on red soil?" And at other times when I ask people why they leave the road-side lands, and especially the land near their homes, to go far away into the back lands to cultivate bananas, where there are no proper roads over which to carry the fruit when it is produced, pointing out the amount of time wasted in travelling, and the extra labour and wear and tear involved in such a practice, I am constantly met with the answer, "Oh, bananas will not grow on these lands, they are worn out," or some times it is said, "The land is not suited for bananas." I generally reply: Bananas will grow profitably on practically any soil if given good cultivation, and a liberal supply of manure. I am again met with the reply; "Oh, yes! we know that anywhere there is a pig-stye or a heap of manure bananas will come all right, but we have not sufficient pigs to make styes all over the place, and we have not sufficient manure to bring up the land." At first sight this appears to be a reasonable difficulty, and one which really faces many people, and one which for some time I did not really see how to overcome in a practical way.

However, some four years ago, I started an experiment which has proved most successful. My idea was to produce on the same land the manure necessary for the bananas. I selected about quarter of an acre of land, consisting of the most wretched red soil you could imagine. It was a part of the property which had been rented out to small settlers on which they had grown corn, peas, and sweet potatoes, for the last forty years. It had become so impoverished that the last few plantings had yielded nothing, and hence I got it to rent. It was not only impoverished, but on account of the constant stirring of the surface without any attempt at deep cultivation, the sub-soil had become packed as hard as a brick, and almost needed a pick-axe to break it up. I began by lining out for bananas, rows 12ft. apart, and the plants 9ft. apart in the rows. The holes were opened out 2ft. wide by 2ft. deep, all the top soil being put in the bottom of the hole underneath the sucker. Down the middle of each row I put two rows of guinea grass 3ft. apart, leaving a clean 4ft. 6in. between the grass and the bananas. I then planted corn throughout the whole patch. While the grass and corn were growing, I got some ordinary round sticks and put up a small pen on the highest part of the land, using up some old rejected shingles to cover a part of it. As soon as the grass began to seed, I put a young filly in the pen (of course a donkey, mule, or young cow would have served the same purpose), I cut the grass and fed it in the pen. I used up the corn crop as green feeding in the same way. The manure was taken out of the pen and forked into the land just immediately around the suckers. I did not plant a second lot of corn, as it clustered everything too much, and kept back the bananas. I soon had enough manure to give each sucker a good dose. I then got some land near by on which to grow corn. This was cleaned up, and all the husk and weeds, which are too often burnt, before digging the corn holes were carried in and spread among the bananas. All the dry leaves from the suckers, with all the superfluous suckers, were chopped up and spread out in the same way, as a heavy mulch between the banana rows. I then had trenches cut in every alternate row, 2ft. wide by 2ft. 6in. deep, and the soil out of the trenches spread on the top of the mulching. Since then I have scarcely had any cleaning to do. The grass as it grew was cut and fed in the pen, and the manure, together with all dry trash, superfluous suckers, and suckers from which fruit had been cut, were cut up and laid in the trenches, which now forms a solid bed of manure upon which the suckers can feed for a long time to come. I have cut the second ratoons which have given some splendid bunches. About two weeks ago I tested one, a fair average bunch, it weighed 1 cwt., having 12 hands, and the largest hand had 22 fingers with an average length of 12 inches, which, considering all the circumstances, is a fair return. The plants paid their way and a little over, and each crop since has given a fair and an increasing profit. There are hundreds of acres of similar land producing nothing but bush to-day, which would give good profit to small settlers under similar treatment.

But it will be said by some we have no money to do all this. Those for whose benefit this experience is equally intended, have

time, and by degrees can do the work themselves. If even a small portion of the time spent in travelling to the far-away ground was given to the development of the home-lands, soon there would be comparatively little need to take the long journey. Then there is one item of profit not yet mentioned. The animal in the pen, which has been doing such good service in assisting to improve the bananas, has also been much improved, and very much increased in value.

E. ARNETT.

THE RED BANANA.

FROM Jamaica there has always been shipped some of the red finger variety, called "Cuban," and sometimes "Baracca," because, we presume, it was commonly grown in Cuba and shipped from Baracca. Because it is not common, and is rather novel to look at on the table, high prices are given for it. The large prices given would no doubt have soon induced the growing of it more freely here had not everybody thought the same thing; it makes a small bunch compared to the "Martinique"—generally 5 to 6 hands only—it is the least good to eat of any of our bananas, the Martinique, China, Apple, Ladies Finger, are all better in the order named (according to our taste), the last the best,—therefore once the red banana became comparatively common, and people were accustomed to see it, the prices would fall, as it would have no intrinsic merit to recommend it.

The following from the London "Daily Telegraph," of 25th August, speaks of it as "a new banana";—

"There is another kind of banana, as yet but slightly known to the general public, one which, if superiority of quality is to be relied on for success, will surely come to the front, viz., the red or claret banana. This is another branch of the fruit trade, at present in its infancy, but which, if given a chance, should develop enormously.

Red bananas are already appreciated in quarters where expense is not an obstacle to the gratifying of a refined palate. The fruit is grown in nearly all the West Indian Islands, but Trinidad is the only one from which it is at present being exported. The plant which bears the claret-coloured fruit is similar in appearance to the "Gros Michel," or Jamaica banana, and grows to the height of about 12ft. to 14ft. It is not very largely cultivated, as the bunches are usually small, and the tall slender plants are rather liable to damage from wind. The flesh of the fruit is a bright cream colour, and when ripe has a pink tinge. The rind is of a dull, red colour, and this same dull red is noticeable in the foliage, and even in the stalk of the plant."

Owing to the irregularity of the steamship service through loss of subsidy, the trade between Trinidad, Barbados, and Dominica, is being worked under somewhat adverse conditions; nevertheless, by each mail there arrive from two to three hundred bunches of red bananas. They are too tender to be shipped in an unprotected condition, and are packed in crates or mats.

At the present time red bananas cost double—and sometimes more—than even the finest samples from the Canary Islands. This may to a certain extent, be due to scarcity, but unquestionably, the excellent quality and perfect flavour of the red banana are the primary causes of its meeting with a liberal measure of appreciation. Americans, who are proverbially good judges of fruit, willingly pay more for a red banana than for any other kind. In New York, it is popularly known as the "Aspinwall."

"In the island of Trinidad, a good many acres have been planted with it, and next year arrivals in this country will be on the increase. At the present time red bananas are chiefly in vogue with members of the Stock Exchange and in the West-end, but should the imports increase in anything like similar proportions to the other branches of the fruit trade, we may soon expect to see this excellent colonial fruit within reach of the masses."

SOUTH DEVON CATTLE.

DURING the "winter," five bulls of the "dual purpose" type, so desirable for our herds here in our present circumstances, will be imported. These will include two Dairy Shorthorns, that is, bulls with a long milking ancestry, as apart from the purely beef type of Shorthorns, like the Scotch type, marvellous animals in symmetry and for making flesh, but the cows of which often do not, and cannot, suckle their own calves, which are suckled to other cows. Dairy Shorthorns have not the fine contour nor the massive appearance of the typical beef Shorthorns, but they are still large animals with the faculty of making flesh quickly and of good quality when they are dry, and of throwing bull calves which, as steers, have the same faculty. Three bulls, of a breed comparatively new to Jamaica, will be brought out, South Devons, and a description of the breed which we took particular note of at the Royal Show of 1905, will no doubt be of interest to penkeepers.

South Devons (or South Hams as they are also often familiarly called) are a west country breed, are real good milking kine; and have such general merits that they are strongly recommended now-a-days. Handsome, big, docile, red cattle are these, as useful for breeding butchers' beasts as for producing dairy kine. Why they are not more kept up country is singular, for they are not seen far beyond Devonshire—their native home—and the adjacent countries of Cornwall and Somerset. We are inclined to think it is because their merits are not generally known.

Some men say the constitution of the animal, native as she is to a warm and genial land, would not bear the vicissitudes of a less kindly climate. But this latter reason scarcely bears working out. For instance, cattle from the Channel Islands flourish fairly well in our midlands, and they are far more delicate in constitution and hail from a far more balmy clime than Devonshire.

Further, the part of Devonshire, known as the South Hams district, the precise home of the herds, extends in the latitude reach-

ing from Exeter to Plymouth, where, at times, most trying gales blow, so keenly, in fact, that our up-country Shorthorns cannot stand the blasts, so it appears delicacy of constitution or being unable to rough it a bit can scarcely be held as a plea for such useful milking cows not being patronized farther afield—cows which are capable of giving far better returns in the pail than Shorthorns, that is, other than the Lincoln reds. An especial merit in South Devons, and rarely estimated enough in any breed, is that in addition to giving plenty of milk, and of more than average rich quality, even such as makes to perfection the farmers' clotted cream, is the attitude to thrive. It enables them to keep in good condition while being milked freely. They are by no means greedy for artificial food either, and yet it is rare to see a really poor cow among them. This holding their flesh so well, and which is so contrary to the behaviour of other milking cows, counts for a good deal more than other shrewd dairy farmers dream of.

Let us see where the virtue counts. 1.—It enables the heifers being bred from all the earlier, because, as with mature cows, so with the younger heifers, the stoutness and good condition tells. 2.—The cows can be kept in milk nearer up to the time of calving than such as milk away and naturally require a considerable rest to recuperate. The cow that allows of a month or two longer milking than another is considerably the more paying animal, and that by the worth of one or two months' milk. 3.—When the Devon cow's time comes for being turned out of the milking herd, and fed off to the butcher, she is half fat to begin with; whereas Shorthorns, for instance, often get very poor towards the latter end of the milking period, so that the fattening up is pretty costly.

A singular trait, though about South Devons is, they appear not to bear crossing to any material advantage with any breed, so are seen mostly pure in blood on nearly every farm in the South Hams district of Devonshire. Yet we know of no other breed that may not be crossed some time to advantage.—“Farm, Field and Fireside.”

WORMS IN STOCK.

THE heavy losses by death in cattle for some years past, and always put down to Texas Fever, prompted me for the last five years to carefully investigate the cause of deaths in my own herd. I now submit the results from my observations in the hope that others may benefit by my experiences. I omit such men as deny having any losses, when, as a fact, daily pyres are lighted in their *back pastures* to their good management and glory! I think if pen-keepers would only consult one another, and not imagine that to do so shows want of business acumen, they would be much better off and *learn some things* they do not know.

I first noticed under the microscope the eggs of intestinal worms. I also noticed that these cattle affected always had their dung *rubbed* into their buttocks (caused by irritation and the working of their tails no doubt), also the dung had a glary appearance: whenever these two last symptoms were present, and the animal showed

signs of illness I gave Thymol—(this was a few years back). I was disappointed in the results, and now find that turpentine is the treatment, if given *early enough*, and in three-ounce doses, repeated every four to five days, till three doses have been given (a pint of linseed oil to be given with the turpentine) in gruel. Everything points to the *Strongylus* as being the cause of most deaths (I was tempted to say all) occurring among cattle. The *Strongyli* are *here* in Jamaica in unlimited quantities. You can find them in the stomach and intestines if a post mortem is performed *immediately* after death. The symptoms are precisely what one would expect, viz., weakness, emaciation, dropsy, and *extreme anaemia*. Perroncito, an authority, says with regard to the human subject of *Strongylus*: "None of the patients need succumb unless the anaemia has arrived at that extreme degree in which the organic power cannot regenerate the blood." I would ask you to particularly note the foregoing. No animal need succumb, if you will, before extreme anaemia sets in, drench with turpentine as I suggest. What all the cattle die of is anaemia, followed by its natural sequelae, the blood corpuscles are destroyed, the heart fails, the animal tissues are not nourished. The *Strongyli* live on the chyle and blood, and are in millions feeding on the animals. Can you be surprised at the results?

A great deal too much is put down to Texas Fever, I believe. We have *Strongyli* with us, and they are likely to be always with us.

The source of infection is *drinking water*. Now what is to be done where properties have only ponds as their water supply? I suggest salting the ponds, and my reason is this, I do not remember seeing any sick cattle where they had only brackish water to drink. I am open to correction, and would be glad to hear from all whose cattle have only brackish water, whether they have ever had "Cattle Sickness," i.e., the cattle pining away, and taking weeks, and perhaps months, to succumb. I may mention that my cattle got sick whether ticks were "in" or not. This disposes of ticks?

I would ask penkeepers to try this for themselves, i.e., the dosage, etc., given above. I would also tell them horses are most seriously afflicted, and die like cattle, and if they would give a horse four ounces of turpentine, a pint of linseed oil, and make up to a quart with gruel, they would feel quite satisfied that the worms are there, and with the wonderful improvement of the animal. My idea that there is no Texas Fever in Jamaica is *theory*. The above and the treatment is *solid fact*, gathered from bitter experience.

I feel I have my stock "in hand" now, and only careless neglect should cause an unusual death-rate. Do not imagine that every animal that has *Strongylus* need look bad or die; it all depends on the number.

Strongylus Contortus breed in standing water and mud. *Strongylus* I have seen seriously affect goats and, of course, sheep. The goats, in a fairly large herd, were nearly all killed off. No treatment that I know of was tried.

I quote Cobbold: "The writer [Cobbold] has encountered opposition in respect of certain *destructive animal epidemics* which he has found to be caused by *Strongyloid* and other parasites."

Stewart Castle, Trelawny.

C. T. DEWAR.

SHORTHORNS.

ONE of the founders of the Shorthorn breed was Mr. Bates, and there were three other men whose names are particularly associated with the original Shorthorns,—Booth, Collings, and Cruckshank, the last named being the founder of the Scotch Shorthorns. The Bates cattle had a high reputation as milkers, and we do not think that any of the present-day Shorthorns now can beat the originals. Bates was a very strong advocate of the development of the milk as well as flesh, qualities of his world-famous herd of cattle, and he made a series of exhaustive tests in the dairy line, particularly in regard to the relation of quantity and quality in butter and milk. In the summer of 1807 his cow, "Duchess" (the first of the Duchess strain), fed only on the grass in the pasture, gave a daily yield of 28 quarts of milk which churned 42 oz. of butter. This butter was made into rolls which contained $6\frac{1}{2}$ oz., and sold for 1s. each. The skim milk was sold to the labourers at a 1d. per quart, which brought to the owner a little more than two guineas net per week. From the thirty cows then in milk, the product was 300 half pound rolls, which when sold at the current market price, realized a little over 10s. per cow, and this not taking into account all the butter and milk used at home.

HOW TO USE A LACTOMETER.

I have been asked to write a short paragraph giving instructions for using a Ferris' Lactometer. I have not come across one of this make, but the following will hold good for any standard make :

A lactometer is an instrument consisting of a hollow glass cylinder, weighted by means of mercury, so that it will float in milk in an upright position, with a narrow stem at its upper end, inside of which is a graduated paper scale. A thermometer is melted into the cylinder, with its stem rising above the lactometer scale. The lactometer is used for the determination of the specific gravity of milk. The specific gravity of normal cows' milk will vary in different samples, between 1.029 and 1.035 at 60 deg. F., the average being about 1.032. The scale of the Q. revenue lactometer is marked at 15 and 40, and divided into 25 equal parts. The 15 deg. mark is placed at the point to which the lactometer will sink when lowered into a liquid of a specific gravity of 1.015, and the 40 deg. mark at the point to which it will sink when placed in a liquid of a specific gravity of 1.040. The specific gravity is changed to lactometer degrees by multiplying by 1000, and subtracting 1000 from the product. Example : Given, the specific gravity of a sample of milk, 1.0345 ; corresponding lactometer degree, $1.0345 \times 1000 - 1000 = 34.5$, conversely, if the lactometer degree is known, the corresponding specific gravity is found by dividing by 1000, and adding 1 to the quotient ($34.5 \div 1000 = .0345$; $.0345 + 1 = 1.0345$).

Like most liquids, milk will expand on being warmed, and the same volume will, therefore, weigh less when warmed than before, that is, its specific gravity will be decreased. It follows then that a lactometer is only correct for the temperature at which it is standardized.

If a lactometer sinks to the 32 mark in a sample of milk of a temperature of 60 deg. F., it will only sink to say, 33, if the temperature of the milk is 50 deg. F., and will sink further down, that is, to 31, if the temperature is 70 deg. F.

Lactometers are generally standardized at 60 deg. F., and to show the correct specific gravity the milk should be cooled to exactly 60 deg. F. A table for correcting the results for errors due to differences in temperature are usually sold with all lactometers, to avoid the slow process of cooling the milk. If, however, there is no table given, for practical work in factories or at the dairy, sufficiently accurate temperature corrections may generally be made by adding .1 to the lactometer reading for each degree above 60 deg. F., and by subtracting .1 for each degree below 60 deg.; *e g*, if the reading at 64 deg. is 29.5, it will be about $29.5 + .4 = 29.9$ at 60 deg. F., and 34.0 at 52 deg. F., will be about $34.0 - .8 = 33.2$ at 60 F. For determining the specific gravity in private dairies, a tin cylinder 13in. in diameter and 10in. high, with a base about 4in. in diameter, is the easiest thing to use. The cylinder is filled with milk, within an inch of top, and the lactometer is slowly lowered therein until it floats; it is left in the milk for about half a minute before lactometer and thermometer readings are taken, both to allow the escape of air which has been mixed with the milk in pressing it in, and to allow the thermometer to adjust itself. The lactometer should not be left in the milk more than a minute before the reading is taken, as cream will very soon begin to rise on the milk, and the reading, if taken later, will be too high, as the bulb of the lactometer will be floating in partially skimmed milk. In reading the lactometer degree, the mark on the scale plainly visible through the upper portion of the meniscus of the milk should be noted.

Barossa, Mandeville.

L. P. KERR.

RICE AS A FOOD.

READERS of the Journal will have noticed how carefully we always define what kind of rice should be used to feed chickens. We have always stated that it should be the brown rice, to be bought in the small country shops or the shops of Chinamen in town. This brown rice is the kind of rice used by the country people in the rice-growing districts in the east, where it often forms 90 per cent. of their whole diet; and although they often may suffer there from insufficient food, when they get plenty of rice they are well nourished, strong and active. The ordinary white rice of commerce, on the other hand, is a poor food, the nitrogenous part having been practically all polished away in the mills, and nothing is left but almost pure starch. The quality of a food is usually judged by its nitrogenous

or flesh-forming ratio. Brown rice contains 14 per cent. nitrogen or protein, and white polished rice 2 per cent., oatmeal contains 15 per cent., cornmeal 12, wheat flour 10. We append the following article from the "Sugar Planters' Journal" dealing with the subject, and refer readers also to an article on the same subject in the May Journal, 1904.

POLISHED RICE.

THE "Sugar Planters' Journal," of August 4th, 1906, quotes Mr. David Fairchild, of the U. S. Department of Agriculture, as follows on the subject of a more sensible consumption of rice:—

Rice is the greatest food staple in the world, more people living on it than on any other, and yet Americans know so little about it that they are actually throwing away the best part of the grains of rice and are eating only the tasteless, starchy, proteinless remainder.

This American fad for polished rice is the most wasteful and unreasonable of any fashion connected with our food products. To Japanese, or a native of rice-growing, rice-eating China this fashion is impossible to understand, and our Carolina golden polished rice, which we consider the finest in the world, is so tasteless that those Orientals who live on the pacific Coast import unpolished rice from Japan and China for their use, refusing to eat our fair but tasteless product.

The practice of polishing rice continues in the south, because the American rice buying public is guided entirely by looks in its retail purchases. Rice, as sold by the American retailers, is a pretty grain, each kernel as smooth and shiny as a glass bead. In this very glassiness lies the deceit, and, were it not for a false fashion, the buyer would no more expect rice to be smooth and polished than he would wheat or rye.

Like so many grains, after they are threshed, the rice grain is made up of a starchy central portion, inclosed in a delicate, more nutritious covering. This thin, rich, outer part, is highly nutritious and full of oily flavouring matter. It is not useless like the pubescence on a peach or the bloom on a plum, but is a nitrogenous coating full of nourishment. Each rice kernel contains, in common with all seeds, a living germ, and in this germ the richest food matters of the seed are concentrated. Yet, because of the American fancy for polished rice, large mills have been erected in the rice-growing south, which rub off, by means of leather polishers, this outer layer and, in the process, remove the nutritious germ; a coating of hot paraffin is even given the kernels. For years, the "polishings," which contain the germs and rich outer coats were thrown away, or sold for \$8 and \$10 a ton for cattle food. Recently the price of them has risen, because the dairymen have discovered their food value for milch cattle, and people have found out that they make good cakes, but even now the remarkable condition prevails which forces the handlers of a great staple product to subject it to an unnecessary, expensive process, in order to remove from it the most nutritious portions.

Official chemical analyses of polished and unpolished rices show that the unpolished grain has over 11 per cent. more of proteids and 65 per cent. more of oily matters than the polished.

PRESERVING PINE-APPLES.

THE installation of canning plants for pine-apples will prove advantageous in localities where all the fruit grown cannot be profitably shipped or sold locally. It is necessary to put up a machine for the stamping and making of the tins; in Singapore and Colombo such a machine would cost about Rs. 2000 (£125), probably £100 in Jamaica. In Singapore the cost of the tins frequently is higher than the pine-apples. The pines are brought to the factory in cattle-carts and sold at about \$3 (Rs. 3 60 = 4s. 9d.) per hundred.

The dark-skinned varieties are preferred to the lighter-coloured ones, especially if the latter have dark spots of cryptogamous origin. The crown, which had already been trimmed more or less to facilitate transport, is left on for another 24 hours after arrival at the factory, because fermentation sets in rapidly, once the crown is cut off, within six hours, I have been told by a Singapore planter. The fruit is then peeled by means of the Chinese knife well known to the colonists of the Far East. The peeled pine is either left whole or cut into chunks, of about 2in. by 1½ in. If it is to be preserved whole, the central part, more or less woody, has to be removed; for this purpose a sort of auger is employed. The acidity of the juice forces the Chinese workmen to protect their hands with rubber gloves while engaged in this work. The fruit, entire or in chunks, is then placed in tins into which some pine juice previously expressed from other fruit has been poured. This juice may or may not be sweetened; a good sweetened juice should test 24 deg. Beaumé. The pines are generally prepared in unsweetened juice if they are intended to be shipped to countries having a high tariff on sugar. The tins are then very rapidly soldered by means of a turntable and soldering irons, heated by gas or charcoal fires. The tins are then boiled in copper or iron tanks for an hour for medium sized fruit till the top of the tin buckles out and seems to want to fly off. The tops are then punctured to allow the gas to escape and immediately after resoldered; they are then boiled for ten minutes more. The tins are then labelled and put up in boxes of a very light wood, in lots of two dozens and shipped.—“*Journal d'Agriculture Tropicale*.”

V A P O R I T E.

A New and Simple Insecticide.

NEARLY every one who plants seeds of any kind, either corn, guinea corn, and vegetable seeds in the garden, is troubled with mice, rats, and grubs of various kinds eating out the seeds. It runs up the expense of a crop of corn, and makes the yield less and irregular in coming in, when replanting has to be done. We have been looking out for something to be used, especially for the purpose

of keeping out these pests, and Vaporite suits very well, being a non-poisonous, clean and handy insecticide. We have tried it this season and have found it useful, although our experiments are not yet thorough. We publish the following correspondence on the subject :—

71a, Queen Victoria St., London, E.C., 7th Sept, 1906.

SIR,—We beg to thank you for your letter of 21st August, which is duly to hand.

In reply we have never used Vaporite exactly as you have used it by mixing it in water and steeping the seed in it, and we fear this might be rather risky with some seeds, but we have used it against mice very successfully on large experiment on bulbs by mixing it with about ten times its bulk of soil, and putting a little over each bulb when planted. One half of the bulbs not so treated were entirely destroyed, but not one of the treated half was lost.

As you are about to use it on corn we have the pleasure of enclosing one of two reports that have just come to hand showing the effect on corn crops. We shall hope to receive an equally good report of your trials.

Yours faithfully, STRAWSONS.

Pennant, Llanwrst, North Wales, 3rd September, 1906.

Messrs. STRAWSONS.

GENTLEMEN,—I am much obliged to you for your letter about the Vaporite, and also for the testimonial which you enclosed. My experience of it this season is that it must have done great good.

I have a field, which during the whole time I have owned—32 years—has never grown a satisfactory crop of corn, owing to the damage done by wire-worm and leather-jacket grubs.

This Spring I sowed 2cwts. per acre of Vaporite by hand on it, and ploughed it in at once the same day it was sown. About a month after the field was sown with oats. I have a splendid crop in the field, and though I went over the field many times when the corn was small I could not see any damage done by grub or wireworm.

I shall try Vaporite again when I have a corn crop in any field which I know is infested with grub.

Yours truly, (Signed) GEO. W. TINSLEY.

Estate Office, Beaufront Castle, Hexham.

Messrs. STRAWSONS.

SIR,—You will be interested to see what the tenant, whose barley land the Vaporite was got for, thinks of it.

The crop is an exceptionally good one, and it is the first time I have seen a really good corn crop on this particular field, as it was always a failure from "grub," chiefly "leather-jacket," I think, and wire-worm.

Yours faithfully, (Signed) M. PORTAL.

Holly Hall, Hexham, 22nd August, 1903.

SIR,—I am extremely pleased with the results of the "Vaporite." As the field is very badly infested with wire-worm and grub, especially when it comes round for barley, I was afraid it would be quite a failure, but instead, it is a very nice crop indeed.

We have never had a full crop of barley in the field before, and nothing but the "Vaporite" has saved it this year.

Yours faithfully, (Signed) J. W. PARKER.

I also thank you very much for the interest you have taken in the field and the welfare of my crop.

JACKS FOR MULE BREEDING.

To make a success of mule-breeding, the kind of jack donkey to be used is naturally of the very greatest importance. Previous experience in other countries is, in this respect, of great assistance in deciding which breed of donkey is the more suitable for the production of mules. Let us consider some of the different varieties that have largely been made use of in connection with mule-breeding.

Broadly speaking, the "Catalonian," the "Andalusian," the "Maltese," the "Italian," and the "Poitou" are the only varieties that have been used to any great extent, though, of course, large numbers of mules are bred from native jacks or nondescript animals, which cannot claim to belong to any one particular breed.

The "Catalonian" is by far the finest type of animal, and must easily be placed first as the sires of mules. He is bred in Catalonia in Old Spain, and was introduced into the country by the Moors at the time of their conquest of that country. He is a good black colour with a white or mealy muzzle, with whitish or greyish coloured belly. He possesses fine style and action with plenty of good, clean bone. These Catalonian jacks vary but little in form and style, but greatly in size, running from 14 to 16 hands, though the majority of those that are actually bred in Spain are from 14 to 15 hands.

In Kentucky, a very fine breed of donkey is produced, which, to all intents and purposes, is a Catalonian donkey that has been bred in Kentucky, but, in many cases, they are descended on the female side from mongrel bred "jennies" (female donkeys) that were crossed in the first instance with pure bred Catalonian jacks. The first pure-blooded Spanish jack was sent to Kentucky in 1832. He stood 15 hands high. This donkey was crossed with the mongrel jennies previously referred to, and the progeny have been continually mated with pure bred jacks, imported from Spain, from time to time. In this way, the present race of jacks, known throughout the U.S. as the "Kentucky Jack," were formed.

The Andalusian donkeys are about the same type as the Catalonian, having, perhaps, a little more weight and bone, but they are all "off colour," and do not possess the spirit and high-class temperament of the Catalonian. They are, in consequence, not so satisfactory as mule breeders, and, even if used for this purpose, their progeny cannot in any way be compared with mules got by Catalonian jacks.

The Maltese is a smaller donkey than the Catalan, being rarely over 14 hands high. He possesses a nice fine coat, but is deficient in bone and substance.

The Italian jack, the smallest of all that are used in mule breeding, usually stands from 13 to 13.2. He is a very smart little animal, possessing very nice quality, and for his size, having good

bone, with a beautiful fine coat. Many of these Italian donkeys are used in India for mule-breeding, as they get a very good class of small, active mule, but, of course, cannot be expected to produce as high class an animal as one got by a Spanish sire. The Poitou donkey, according to some authorities, is supposed to have been originally of Spanish extraction. He differs, however, very considerably at the present day, both in outward appearance and in disposition from the Catalan. He occupies a similar position in the donkey world to that occupied by the Clydesdale amongst horses, having great bone and weight, with a larger and more open foot than other breeds of asses. He is essentially the class of donkey suited for slow and heavy draught work. No doubt the great difference which exists at the present day between this breed and the Catalan, has been brought about by selection and careful breeding. The head and ears of the Poitou are enormous; the larger they are the more valuable is the animal considered to be. So large are his ears that they are very often carried horizontally, like those of a lop-eared rabbit, giving the animal a very extraordinary appearance when viewed from the front. His lips, especially the lower ones, are curiously pendulous, and he carries a long mane and forelock. He is covered with an extremely long coarse coat, and, on his legs there is also a plentiful growth of coarse and wiry hair. Although this donkey is possessed of many good qualities for the production of mules in some countries, he is not an animal that would be found adapted for mule-breeding, in any hot country, as his enormous growth of coat would harbour parasites, and his sluggish disposition would not be likely to make him a success in breeding the class of mule required here.

Large numbers of mules are bred annually from all the varieties of donkeys to which we have referred, but by far the largest number are bred from the Catalan jack, who has proved himself for many years to be superior to, and more successful than, any of the other breeds. Catalan jacks develop one very marked peculiarity, and that is a uniformity both in shape, good colour, thrifty growing and feeding qualities, combined with docile tempers in the mules produced from every quality and colour of dam. And experience has shown that a finely formed, high couraged Catalan jack, standing 14.2, will produce a mule as good, if not better, than a 16 hand Kentucky jack, although the Kentucky donkey may be, to all intents and purposes, a pure bred animal. The best mules are produced by truly formed Catalonian jacks standing from 14.2 to 15 hands, and it is a mistake to make a point of obtaining a very much larger jack, as, in most cases, when you get a jack of great height, he is found to be deficient in girth and in substance, and has a decidedly weedy appearance.

A good jack should have plenty of bone, measuring not less than eight inches below the knee, with as much body and depth of girth as possible; a large head and long ears of fine quality which should be carried sharply and erect. He should be possessed of good

courage and activity, and be good tempered, this last point being of great importance. The feet of a Catalan jack are not as large as those of a Poitou, but should be sound and truly formed.

The Kind of Mare to Breed from.—A mule gets its head, ear, foot and bone from the jack, also its internal characteristics, hardness of constitution, and capability for endurance, but its body and height come from its dam, and, therefore, breeders must not consider that, although they are possessed of a good Catalan jack, any sort of a little mare will breed them big and high class mules, as this will not be the case. Tall jacks and tall mares will never produce mules the equal of those bred from tall mares and heavy good-boned jacks from 14.2 to 15 hands high. For, although a 16-hand jack, if mated with a mare of equal size, will produce a mule of even greater height than either, the result is generally a high-bodied and leggy animal that is in every way undesirable.

There are many authorities who advocate that only a very good class of mare should be used for mule-breeding, and that indifferent and unsound mares should never be used. But with this opinion I do not quite agree; for whereas, of course, it is much better to breed mules from good, roomy, sound mares, still a breeder may often find himself in possession of a mare which has some hereditary unsoundness that would render it most undesirable for her to be put to a stallion; but, on the other hand, one would not feel so much compunction in having her covered by the jack as there would be no fear of the progeny passing on any unsoundness, owing to the wise provision of nature that renders the hybrid sterile. I do not wish my readers to understand from these remarks that I am advocating the breeding of mules from unsound mares, but rather that, whereas it would be entirely wrong to knowingly breed horses from unsound mares, no great harm could accrue from trying to produce a useful mule from a mare that otherwise would be useless.

General Treatment of Jacks.—The condition under which imported Spanish jacks are fed before they leave their native country are very different from those adopted after they come into the possession of intelligent breeders. In Spain, the donkeys live up in the mountains, and are chiefly purchased from the peasants, who do not in any way take the trouble of feeding and looking after their animals, and, consequently, the donkey at an early age is expected to do a great deal of hard, heavy work and to find his own food the best way he can. When one considers the size and the quality of these Spanish donkeys, in spite of the adverse conditions under which they are bred, one is the more impressed with their excellence, which accounts for their extraordinary hardness and capability for enduring the greatest privations and hardships. Bearing this fact in mind, a newly imported donkey must be fed cautiously, and considerable care should be exercised not to overfeed the animal, nor to try too quickly to bring him into high condition; otherwise he will be found to become much troubled with

skin affections, and, in other respects, very liable to get out of health and go wrong in the legs and feet. The jack donkey that is regularly serving will, in addition to grazing, which should always be allowed when possible, of course, require to be well fed with a certain quantity of grain—corn or maize for preference, as this is the only kind of grain which they have ever received, and then only in very limited quantities ; but during the off season it is a mistake to feed them too well. Jack donkeys which are intended for mule-breeding, should never be allowed to serve jennies (female donkeys) as, very often, the donkey that has been serving jennies will refuse, to cover mares. Again, many jacks, although they have never been allowed to serve jennies, will refuse the mare until they have been “prepared” by the presence of a jenny, at any rate, until they have become thoroughly accustomed to serving mares. If no jenny is available, very often another jack or even a mule will produce the desired effect. Care should also be exercised in introducing mares to the jack for the first time, as very often they will refuse him owing to fear, and it may be found necessary to blindfold them.

Many jacks, especially after they have been at the stud for some time, get credit for being very vicious, but instead of this term they might more correctly be spoken of as being very “lively.” They will sometimes attack and “savage” a stranger, and it is often very difficult to beat them off, as they will take any amount of punishment about the head and body, but they will soon retire if struck over the ears with a light whip or switch. Almost all donkeys will stand quite quietly when once their lower lip has been firmly grasped in the hand and held tightly.

Some jacks exhibit great peculiarities in the way in which they will cover mares. Very often they can only be induced to do so when the mare is introduced to them in the same yard or field. In such cases, to save time and trouble, a rule should always be made for the mare to be brought to the jack at the same place. These methods are, of course, not by any means necessary in all cases, as many jacks will not give any trouble at all. But they are peculiar animals, and experience shows that if one is to be successful, it always pays to give way to whatever their peculiarities may be rather than endeavour to oppose them.—“Transvaal Agricultural Journal.”

THERE appears to be a greatly exaggerated opinion as to the benefit obtainable by inoculation. To attribute to it the power of producing luxuriant crops on any soils of, otherwise, barren character is obviously absurd. Under the best of conditions, it can only compensate for lack of nitrogen in the soil, and a full crop can only result if the soil be capable of supplying an abundance of lime, potash, phosphoric acid, and all necessary plant food with the exception of combined nitrogen.

COMMENTS.

SHOWS.—We call attention to the list of Shows published on page 558 in this Journal. On the 28th November there is the Manchester Show at Kendal, long established and usually of great interest. The Secretary is Mr. Geo. Bonitto, Mandeville, to whom entries ought to be made. The Treasurer is Mr. H. Crum-Ewing, Mandeville. A fine show of stock is expected.

On the 28th December, the Appleton Agricultural Society will hold its second Show at Siloah, near Appleton Station.

On the 1st January, Savanna-le-Mar Show will be held. This Show usually is a very fine function, and as the districts ought to be a good bit more prosperous than they were two years ago when it was last held, there should be a large attendance and good competition.

On the 24th January, the Porus Agricultural Society proposes to hold their first Show at Porus, and we trust their efforts will be successful in arousing further interest in agricultural matters in the district.

On the 28th February, the Montpelier Show will be held at Montpelier, which is promised to be a greater Show than the last one. As Montpelier is on the railway, there ought to be many fine exhibits and a large attendance.

On the 6th March a Show will be held at Christiana, and an excellent little Prize List has been issued. Classes have been selected as being of more particular interest to the district, far more substantial prizes to be offered than usual. There are four prizes offered for some of these products, such as coffee, bananas, ginger, oranges and grapefruit.

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RAMIE.—Ramie is a perennial—in this office at any rate. We ought to be tired of it as we have not appeared to get further along. Still we have lived in hope, and written letters, seeking information, and giving information, with patience. We hope now to be able to give many readers as are interested in Ramie, the very latest information available as regards cultivation, and subsequent treatment by special machinery of this valuable textile fibre. We are indebted to L. Neelmyer, Esq., the Imperial German Consul of this City, for the data and sketches made use of in the article, which we hope to present to our readers in our next numbers. A special interest attaches to the "Aquiles" decorticator, inasmuch as it combines simplicity, capacity, ease of operation, and, best of all,—cheapness, costing only £60 list price. Mr. Neelmyer deserves the thanks of the agriculturists in this country for so promptly and disinterestedly supplying information that, we are sure, will be very welcome.

PRICES OF BANANAS.—Crated bananas are selling in the United Kingdom, according to weights, as follows ;—

36lbs.	gross	3/6	per crate.
41lbs.	do	4/	do.
46lbs.	do	4/6	do.
51lbs.	do	5/	do.
56lbs.	do	5/6	do.
61lbs.	do	6/	do.
66lbs.	do	6/9	do.
71lbs.	do	7/3	do.
76lbs.	do	7/9	do.

That is, for those bananas arriving in good, sound condition.

LEMONS.—The highest price on record for Naples Lemons was reached at the sales on 10th September, when 82s. was paid for some cases, and an average of 50s. 5d. for 1247 cases, containing 420 lemons each. If those who have lemon trees, would only work them to get the fruit in from May to September, very good prices would be realised.

Two shipments of lemons, one in August, and one in October, have been sent by us to London to test the market on behalf of a member. The report on the first was that the fruit arrived in miserable condition, even though they had been sweated in the most approved style here, and were exactly the same style of lemons that were awarded a medal at the Colonial Fruit Exhibition early in the year. The price then ranged from 14s. to 45s. per case of 420. The second shipment was also a bit wasty, that is, a few rotten in each case, but they realised 12s. per case. There is no doubt that there is a remunerative market for lemons, if they arrive in good condition in the United Kingdom, from June till the end of September. At present, a trade is being done to Canada via Halifax.

PRICES OF FRUIT.—We propose publishing in our next Journal a statement of the prices of fruit and vegetables in which we in Jamaica may be interested, showing Covent Garden market prices from 1st September 1905 to 31st August 1906.

A NEW DISCOVERY.—In connection with the paragraph in last Journal entitled, "Is it a New Thing or Discovery?" it has been the custom for ages, we suppose, for shepherds to take the skin of a dead lamb and put its skin on one of twins of another sheep and give it to the new mother. The following from "The Country-Side" is given on the subject :—"We know that when a sheep has lost her lamb, the only way to induce her to adopt another instead, is to cover the changeling with the skin of the dead lamb. After critically smelling this, she will allow the little stranger to take milk ; and by degrees the skin is removed, so that the sheep is not aware at what stage she transfers her affection to a lamb with a different smell from that which stirred her maternal emotions at first. So intimate, indeed, is this connection between such an animal's sense of smell

and its maternal instincts, that in India, the dairymen who bring round their cows to be milked from door to door, carry—in the case of a cow which has lost her calf—a wooden trestle on which the dead calf's skin is stretched, because, unless this is placed by her side, the cow will refuse to give milk."

* * *

COTTON.—Any parties who are growing cotton, and wish to compete for the medals offered, by Sir Alfred Jones for the best cultivation of one acre or over, should now notify the Secretary of the Jamaica Agricultural Society, 4, Port Royal St., Kingston. We are glad to say that the Caravonica Cotton seed imported from Australia has grown luxuriantly, and some Jamaica grown seed will soon be available. It seems to have made little difference what month it was planted.

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COCONUTS.—Coconuts are air-loving trees; they cannot abide shade and shelter unless when they are young; they grow quicker, become more vigorous, bear quicker, and are more productive generally with plenty of breeze and sun. They are more profitable than mango and star apple and such like trees; therefore the many small settlers who have coconut trees standing in a jumble of large spreading, or overhanging trees of little value, should make up their minds which they want. If they want coconuts then they should cut down the other trees to give the coconut trees room.

BRANCH NOTES.

THOMPSON TOWN.—The special meeting of this Branch to arrange for the forthcoming Show on December 20th, came off on the 17th October, in Thompson Town Schoolroom. The President, Mr. J. B. Morrison, occupied the chair. The following members were present: Messrs. D. McKenzie, H. A. F. Edwards, T. S. Burrell, H. Peck, R. McDonald, T. Clarke, Teo. Davis, A. B. Gale, Emanuel Palmer, Mrs. S. Davis, Mrs. S. Reid, Misses V. Miles and C. B. Hayles. There were thirteen visitors, including the Revd. G. Turner and Mr. J. T. Palache, the new Travelling Instructor, who visited this Society for the first time. Mr. Palache was warmly received. The minutes of the last meeting were read and confirmed. There was a deviation from the order of the items on the Agenda, in order to allow Mr. Palache to give his lecture on Coffee-growing, and leave in time to attend the evening meeting of the Mocho Branch. The lecture was very interesting. The lecturer explained parts of his lecture by drawing sketches on a black board. Valuable instruction was also given re the catch crops which should be grown, and their distances apart among the permanent crops. At the close of the lecture, a cordial vote of thanks was awarded Mr. Palache after which the regular business of the Society was continued. It was decided that the Show should come off on the day fixed, 20th December, and that an entrance of 6d. be charged at the gate. It was agreed to invite the Mocho Branch to join in the competition.—W. A. BRYAN, Sec.

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ST. GEORGE'S.—The October meeting of this Branch was held in the Buff Bay Courtroom, on Saturday, 13th. There were present: Messrs. Miller, Sandford, Burgess, Stedman, Welsh, Sutherland, J. B., J. H. and A. B. Cousins, and the Secretary. After the usual preliminaries were disposed of, several important letters were presented for the committee's consideration. Letter from the Secretary of the S.P.A.J., enquiring whether the vote of £1 from that

Society was received. Letter from Parent Society suggesting that we should not allow our idea of Show to fall through. Resolution from Fair Prospect Branch asking for co-operation with them in holding a Show in December. From Messrs. Haddon & Co, London, on shipment of small settlers' produce in small or large quantities direct to them through this Branch. On this important question, a committee consisting of Messrs Miller, Welsh, Burgess, J. B. Sutherland, and I. Haase (three to form a quorum), was appointed to report fully on the question. The monthly accounts were passed and the meeting adjourned till the second Saturday in November.—W.J. THOMPSON, Sec.

* * *

DEESIDE.—The annual meeting of this Branch Society was held in the Hastings Schoolroom on Tuesday evening, 2nd October. It was opened in due form by the President, Mr. J. A. Foote. The minutes of the last monthly meeting, also of a special meeting were read and confirmed, after which the Revd. A. G. Eccleston, who was present, was asked to take the chair. There were also present: E. Arnett, Esq., Local Instructor; C. Brown, Esq., F. M. Kerr, Esq., and 16 other members and visitors. The different offices were declared vacant, when it was moved and seconded, that the officers for the past year be re-elected for the ensuing year, as also the members of the Managing Committee of the Branch. Mr. Arnett thanked the officers and members for their past year's services, and expressed the hope that they would continue to serve the Society faithfully and well as they had hitherto done. The report for the year was presented and adopted. The chairman in his remarks spoke highly of the success that attended the Branch since its formation, and urged the members to press on in furthering the work of the Society. The office of a Trustee for the Penny Bank being vacant, Mr. R. Roche was duly elected to fill that office. The Society has to its credit £1 3s. 4d., and amount lodged in Penny Bank to date, £82 4s. Mr. Arnett then gave a lengthy address, congratulating the officers and members for the success achieved during the past year. He pointed out to all present the objects of the Society, and impressed upon the members the necessity of co operation in promoting its welfare. After the business part of the meeting had gone through, a pleasant function in the form of a "Social" took place. This was arranged for by the members in celebration of the second year of the Society's existence. A very profitable and enjoyable time was spent, after which the names of four new members were enrolled. The National Anthem was sung and the meeting brought to a close. The following is the Annual Report:—The Deeside Branch was formed on the 27th September 1904. During the year ending 27th September 1905, we had twelve meetings and forty members enrolled for the year. The membership list showed twenty-eight members for the year ending September 1906, several of the members having dropped off through non payment of fees. We have to record the death of Mr. Chas. Hudson, who was one of the foundation members and Treasurer of the Society and Penny Bank, and also one of the Trustees for the Penny Bank. During the year he passed away, and is gone to join the great majority. We had nine monthly meetings for the year, and two special meetings, the heavy rains having washed out three of our monthly meetings. We held a Show in April which turned out a success in every way. At the close of the year 1905, we started a Penny Bank in the interest of the district and welfare of the community. This was started 13 months ago, and we have amounts lodged to date £82 4s. 5d. We cannot go on without feeling the loss of our Secretary, Mr. Archibald McKenzie, for his deep interest taken in the Society. He left this part of the Island for another sphere of labour. The Society has to its credit 23s. 4d. We have had the presence of Mr. Arnett, Local Instructor, twice during the year ending 1905, and four times during the year 1906. We are thankful for the blessings bestowed on us. We have had fruitful showers always, and whilst we do not see everything around us bright and flourishing, we must not be despairing, while the earth remains seed-time and harvest we shall reap if we faint not. We must put forth a more strenuous effort in this new year which we have entered upon, each member doing his part in promoting the interest of the Society.—JAMES A. FOOTE, President.

* * *

CENTRAL St. ANDREW.—A meeting was held on the 17th inst., at the St. Hopher's Mission House, to arrange on the matter of the amalgamation with

Mannings Hill Branch which was decided on. Since the amalgamation it was unanimously agreed that this Society be called the "Central St. Andrew Branch." Owing to the inclemency of the weather, not many members were present. The first transaction of business was the election of Officers, viz :—Messrs. O. Feurtado, President; G. W. Byrnes, Vice-President; R. O. Thomas, V. P.; Chas. Douglas, V.P.; R. K. Smith, V.P.; Charles Williams, Treasurer; Joseph P. Leigh, Secretary, and James Anderson, Assistant Secretary. The following members were elected officers of the Managing Committee, viz :—O. Feurtado, Esq., J.P., Chairman; Messrs. G. W. Byrnes, Augustus Graham, James Anderson, R. O. Thomas, Hez. Josephs, James Rose, Alex. Walters, Chas. Douglas, Richard Douglas, Fred. Cumbers, Chas. Williams, R. K. Smith, James Wilson and Jos. P. Leigh, Secretary of the Committee. The following members were present :—Messrs. C. Douglas, Richard Douglas, Fred. Cumbers, Daniel East, Joseph Beckford, Elisha Wilson, James Wilson, James Rose, Hez. Josephs, and a few visitors. The travelling instructor, J. Briscoe, Esq. for the district, was present. The Chair was occupied by Mr. G. W. Byrnes, V.P. of the Branch who, in a few chosen words, introduced the lecturer. He then gave a warm address on Agriculture—Cocoa, Coffee, Banana and Vegetable products, also the tilling of the soil and rotation of crops. The lecturer was listened to with intense interest, and at its close a hearty vote of thanks unanimously accorded to him. The Secretary thanked the members for re-electing him to his office, but as a working and ambitious man, he was very much dissatisfied with the state of things—for the membership was too small and was most regrettable. He would however endeavour to do his best, and trusted that every one who was alive to his interests, would stick to their promise by attending the monthly meetings, remembering the motto, "United we stand, divided we fall." Affiliation fee was sanctioned to be paid. The Secretary and Treasurer are to make the necessary arrangements for the purchasing of some agricultural tools for the benefit of the Society. This meeting was one of the pleasantest, as well as the most encouraging we have had for some time.—JOS. P. LEIGH, Secty.

* * * *

TRINITY VILLE —A Special Meeting was held on Tuesday, 9th October at 4 p.m. Present: Mr. W. A. Carr (President), Messrs. J. F. Anderson, Vice-President, and sixteen other members of the Society. I. J. Mordecai and R. Ehrnestein, Esqrs, being among them. Mr. Jas. Briscoe, the Travelling Instructor, was also present. The forthcoming Show was the chief business of the meeting. The second Thursday in February next was fixed as the date of the Show, and a Committee, consisting of Messrs. Carr, Briscoe, A. Hearne, Anderson, Ehrnestein, Mordecai and Edwards, was appointed to draft a new Prize List. The Secretary was instructed to write again to the Bath Society for their decision *re* co-operation. The *Æolus* Valley Branch was to be also communicated with on the subject. Mr. Ehrnestein informed the meeting that Mr. E. B. Hopkins and himself intended to run a refreshment stall at the Show where only native products will be served—ham, cornmeal, etc. He hoped the time was near when our people would set more value on our cornmeal, etc. The chief grain grown in Scotland is oats, and Scotchmen are regarded as the hardiest race—are to be found all over the world. If Scotland with its oats can produce such sturdy men, Jamaica with its cornmeal, etc., ought to produce better men. Mr. Hopkins has promised two prizes for native food products, and he Mr. Ehrnestein hoped members would work for them. Mr. Mordecai said he did not think the people set enough value on the Society. He was doing all he could to benefit the community, and hoped soon to be in a position to tell every one to plant all the canes, cocoa, etc. that they could. [Mr. Mordecai was of course referring to the Central Factory soon to be established at Serge Island Estate.] He wished to see occasional meetings held at Morant Bay. Gentlemen from that town could not always attend meetings at Trinity Ville; but he felt sure that many of them would take part in the working of the Society if meetings were held at Morant Bay. It was agreed that the next meeting be held at Morant Bay, and that Messrs. Hawkins, O. B. Mordecai and Prince, be put on the committee for collecting funds for the Show. Mr. Hawkins is also to be asked to be Assistant Secretary for the Show. Mr. Briscoe next addressed the meeting. He was pleased to be present at such a

meeting. He hoped the gentlemen present would all interest themselves in the roads which he found in very bad condition, and through which he had an accident which might have resulted in the loss of one of his horses. He advised members strongly to see to the proper curing of their products. The market was ruled by the inferior quality, and it did not cost any more to cure the best products, than to cure the inferior ones. He gave some practical hints on the curing of cocoa, during which a discussion arose as to whether cocoa should be washed or not. Mr. Briscoe advised washing to prevent much shrinking and for giving good colour. Mr. Mordecai said no washing was done on his plantation. The President explained that in Trinidad the beans were fermented for four, five or eight days, and were then danced by coolies, but were not washed. In coffee cultivation Mr. Briscoe advised deep cultivation and manuring. He thought some small settlers attempted too large an area of cultivation. A limited amount of cultivation well managed was by far better than a large area badly managed. Inspector Knowles became a member of the Brauch. Ground provisions are abundant. Coffee is somewhat late. Oranges still being bought at 1s. per 132. Weather splendid at present.

PORUS.—^{*}The regular meeting of this Branch was held in ^{*}the Church Schoolroom on Monday evening, 8th inst., when at roll call there were present : Revd. W. B. Esson, Vice-President, in the chair, Messrs. R. S. Munroe, Treasurer ; Jno. Campbell, Robt. Cole, W. U. Magnus, D. Crosbie, J. L. Hibbert, W. A. Morgan, R. A. Henry, L. A. Williams, T. Dixon, Thos. Morgan, A. McCocle, Wm. Steele, J. D. Price, A. S. Rose, Secretary, C. Rowland, Assistant Secretary, and several visitors. It was suggested by Revd. Esson, that if the Secretary did not hear from the Secretary of the Parent Society *re* the board, Colonel Pinnock be written to, and make inquiry of the same. *Re* the sidewalk to the St. Toolis District was next dealt with ; it was decided that the Vice-President and Secretary go to examine the spot. Two letters were received, one from the ex-President, H. S. Braham, Esq., informing us of his travel, and the price of produce, etc., in America, also one signed by three members of the Society *re* the present price of oranges grown by the local dealers, and that the Society should go on making arrangements whereby they could get the best possible price for their produce. It was moved by Mr. J. D. Price, seconded by Mr. A. McCocle, that the Secretary write Mr. Chambers asking him for information on the selling of produce, vegetables, etc., etc., on the 1s hmus, and if he would undertake the selling of the same for members of the Society. It was moved by Mr. J. D. Price, seconded by Mr. A. S. Rose, that the Secretary write Mr. Barclay for 1lb. of Havana tobacco seeds. Moved by Mr. A. S. Rose, seconded by Mr. C. Rowland, that the tool-keeper, bring all the Society's tools, at next meeting, and report on them. The Vice-President informed the members of what he saw published in the "Gleaner" *re* Colon and vegetables, etc., etc. He suggested that the members should try Irish potatoes, cabbages, tomatoes, turnips, carrots, etc., etc., and that Mr. Barclay be written to, asking him to save a barrel of seed potatoes, and seeds of the above vegetables, that members may get them to plant. The next business for the evening was that of an Agricultural Show to be held early in January, 1907. The chairman-having pointed out in a minute manner the necessity of this Show, and the improvement it would make in the Society, members present were called upon to express their views on the subject, all of which were unanimous to the carrying out of the Show, and they were asked to contribute voluntarily with the view of making the matter a success, every member present then promised an amount varying from £1 to 2s, which totalled £7 15s. 6d. It was moved by Mr. D. Crosbie, seconded by Mr. N. A. Morgan, that members who give 5s, and upwards, would have all their things go in free, which was carried by a majority of seven. The appointment of a Committee for the Show was next dealt with. Messrs. Q Logan, S. A. Hendriks J. A. Daley, J. L. Hibbert, V. N. Magnus, D. Crosbie, R. S. Muuroe, W A Morgan, R. A. Henry, A. McCocle, T. Dixon, Vice-Presidents and Secretaries five to form a quorum. A committee meeting followed shortly after.—C. ROWLAND, Ast Sec.

CORRESPONDENCE.

Dunfermline, Grenada, B. W. I., 10th August, 1906.

SIR,—I should like to say how much the Journal of your Society is appreciated outside your own borders, personally I look forward to its arrival and always feel disappointed when it is delayed owing to the present irregularity of the mails.

Yours faithfully, G. S. S. B.

Reply to C. N. in October Journal :—With regard to the query re getting rid of lizards, a correspondent writes that you might try arsenic and honey or honey alone in a large mouth bottle. Lizards are very fond of sweets (he writes) and once they get in cannot come out owing to the stickiness of the honey—Ed.

LATER.—But on trial, it has been found that the lizards do not go in the bottle. What then !—Ed.

SIR,—Silvera's Tick Traps are said to be splendid for cleaning ticks off animals, and I find it takes off the Silver Tick which cannot be killed by any wash. I have soaked one in pure Creosote for a quarter of an hour, and after that I took him out and he walked. I find the trap also very good for taming stock, they are a bit timid at first, but after a few applications the animal will enjoy the treatment, it is good for men with small herds, and I think it should take in the dairies.

A. D. C. L.

SHOWS TO BE HELD.

THE following Shows are arranged :—

Manchester,—Kendal, 28th November.

Appleton, 28th December, 1906.

Savanna-la-Mar, 1st January, 1907.

Montpelier, 28th February, 1907.

Christiana, 6th March, 1907.

Tainity Ville, 14th March, 1907.

A SIMPLE TEST FOR LIME.—Take a few shovelfuls of soil from different parts of the field or orchard and dry, pulverise and mix them thoroughly together. Take a few ounces of this powder and reduce to ashes on an iron shovel over a fire. Put these ashes when cool into a glass tumbler and mix with them as much water as it will take to cover them. Stir this with a glass rod or wooden stick, but not with anything metallic. To this paste add an ounce of hydrochloric acid which is commonly sold as muriatic acid, or spirits of salts, the mixture being stirred all the time. If a fairly brisk effervescence takes place, it may be taken for granted that the soil contains a fair percentage of lime, but if little or no effervescence takes place the soil contains little or no lime.

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BOARD OF MANAGEMENT.

THE USUAL MONTHLY MEETING of the Board of Management of the Jamaica Agricultural Society, was held at the Office of the Society, 4 Port Royal Street, Kingston, on Thursday, 15th November, 1906, at 11.30 a.m. Present:—His Excellency, Sir J. Alexander Swettenham, presiding; Hons. Dr. Pringle, Lieut.-Col. C. J. Ward, (Vice-Presidents), W. Fawcett, (Deputy-Chairman), and L. J. Bertram Revd. Father Collins, Messrs. John Cameron, D. Campbell, R. Craig, C. A. T. Fursdon, E. W. Muirhead, and the Secretary, John Barclay.

Apologies for absence were received from Mr. J. R. Williams, whose official duties prevented him from attending, and from the Hon. Geo. McGrath, who had to attend a meeting of the Parochial Board of St. Catherine the same day.

Minutes.

The minutes of the previous meeting being before the Board, were taken as read and confirmed.

Instructor.

The Secretary submitted letter from Mr. H. D. D. Mennell, who had been appointed Instructor for the Western Parishes accepting the appointment on the terms and conditions offered by the Board. The Secretary stated that he had received this Instructor's itinerary and report on his first fortnight's work.

The Secretary submitted statement of account *re* the Agricultural Instructors, showing the amount to be claimed from the Government on account of Elder, Dempster & Company's £500, amounting to £280 8s. 4d. as at 31st March, 1907, and stated that there would thus be £239 11s. 8d. of the £500 not used this financial year.

His Excellency asked from what date the Secretary had made up the statement.

The Secretary stated that he had only dealt with the £500 for this year, taking it from the 1st April.

The Secretary was asked if it had yet been settled, what amount should be paid by Messrs. Elder, Dempster & Co., in consideration of the past years.

His Excellency said there was a difference of opinion between himself and Messrs. Elder, Dempster & Company; he held that the payment should date from the day he had laid it down that the Company must pay or fulfil the clause of the Contract, while the Elder, Dempster Co. held that they should only pay from when the arrangement to accept the £500 in lieu of the fulfilment of the clause of the Contract was agreed to.

Mr. Fawcett asked why payment should not begin from the time the Instructors were dismissed.

His Excellency said that could not be, because when the Instructors were dismissed they had not immediately demanded that others should be appointed in their place.

Bulls. The Secretary stated that the two bulls had now been placed, the roan bull being sent to Mr. Young, on October 28th, and the red bull to Mr. Lewis, only the day before, as the weather had been so wet that it could not be walked up from Williamsfield to Mandeville.

In this connection, he read the following letter from the Colonial Secretary :—

No. 9267-11071.

29th October, 1906.

"In reply to your letter No. 2185 dated the 25th inst, I am directed to ask you to be so good as to furnish the Governor with a statement of the expenditure incurred by the Agricultural Society for the maintenance of the two Shorthorn bulls presented to His Excellency by Sir Alfred Jones, beyond the amount which the Society can meet from its estimates."

The Secretary stated that he had just received Dr. Gibb's account for £15 11s. 6d., and there stood at the credit of allocation for bulls on the Society's estimates £4 19s. 3d., which would leave a balance of £10 12s. 3d. to be claimed from the Government.

He was instructed to try and get a revision of one item of Dr. Gibb's account, and then ask the Government for the balance due the Society.

The Secretary asked the Board whether in event of the premiums not being all competed for this year, they would continue in next financial year until the money put aside for the purpose was used up, he referred more particularly to the premiums offered for the importation of goats, as the others would probably all be competed for.

It was agreed that the premiums offered would hold good in the next financial year if they were not all competed for before.

The Secretary asked that in view of importations being made, arrangements be made for the inspection of the bulls, and as the conditions were that the bulls must be six months in the Island before the premiums could be awarded, they would require to be inspected on arrival, and after six months.

After discussion, the Secretary was authorised to inspect the animals on arrival, and further arrangements would be made for later inspection.

Meat Inspection.

The Secretary read the following letter from the Colonial Secretary's Office :—

No. 9352-11070.

31st October, 1906.

" With reference to your letter No. 2198, dated the 25th inst., I am directed to request you to state whether you have any evidence on which the charge of apathy against the Police in connection with the sale of unwholesome meat is based."

The letter was referred to the Live Stock Committee for reply.

W. I. Agricultural Conference.

The Secretary read the following letter from the Colonial Secretary's Office, referring letter to the Director of Public Gardens with regard to the West Indian Agricultural Conference as follows :—

No. 9273-11001.

29th October, 1906.

" I am directed to inform you that it has been arranged that the " Port Kingston" should visit Barbados both on her outward and homeward voyage in January next, and that without transgressing contract time.

2.—The members of the Conference will travel by her both ways. I am to request you to send in as soon as possible the programme of the Agricultural Conference proceedings, and to request you to make proper arrangements for the accommodations of the Conference."

The Secretary also read the following letter from the Director of Public Gardens to the Board :—

12th November, 1906.

" When Sir D. Morris expected to hold the Agricultural Conference in Jamaica last January, a Committee was appointed to make the necessary arrangements, consisting of the Colonial Secretary, the Director of Public Gardens and Messrs. R. Craig and J. R. Williams.

I am directed to ask whether you approve of the re-appointment of the same Committee."

This Committee was approved of.

Storm in Costa Rica.

The Secretary read the following letter from the Colonial Secretary's Office :—

No. 9429-11060.

3rd November, 1906.

" I am directed to inform you that as the result of enquiry which has been made as to damage done to the Costa Rican banana crop by storm, it has been ascertained from the British Vice-Consul at Port Limon that there has been no storm at that place, but that a few weeks ago there was a fairly stiff gale which did some damage to cultivation, and that one section on the sea-coast was pretty badly hurt, but that on the whole, the loss was not great in proportion to the area under cultivation, and has not to any great extent affected the output of fruit.

2.—" The Vice-Consul also states that it was rumoured that the Bluefields cultivations had been destroyed by a storm which struck the Pacific Coast of Costa Rica, doing much damage, but he adds that as all the banana cultivation is on the Atlantic Coast it was not harmed."

The Secretary stated that in the various Agricultural Journals he had received, he had noticed reference to a serious storm at Bluefields, and quoted an extract from the " Indian Rubber World" as to damage done to rubber plantations in that part.

Dr. Pringle said that certainly some damage had been done in Costa Rica, though nothing like the extent we suffered here in the 1903 hurricane, and he thought there must be a shortage of bananas, as the Elders and Fyffe's steamers were also loading here, instead of filling up at Port Limon.

Commercial Agent The Secretary read the following letter for Philadelphia. from the Colonial Secretary's Office :—

No. 9316-10844.

30th October, 1906.

" I am directed to acknowledge the receipt of your letter No. 2096, dated the 19th inst., transmitting a letter from Mr. A. Markland Taylor, relating to a Jamaica Commercial Agency in Philadelphia.

" 2.—In reply, I am to convey to your Society the Governor's thanks for the opportunity afforded of perusing Mr. Taylor's letter, and to say that His Excellency will leave it to your Society to deal with the matter therein referred to.

" 3.—Mr. Taylor's letter is returned."

The Secretary was directed to reply to Mr. Markland Taylor, that the Society had no funds to move in the direction asked.

Freight in E. D. & Co.'s Steamers. The Secretary read the following letter from the Colonial Secretary's Office :—

No. 9755-11744.

13th November, 1906.

" I am directed to forward for the information of the Jamaica Agricultural Society a copy of a telegram from Messrs. Elder, Dempster & Co., expressing disappointment that fruit shippers are not availing themselves of opportunities by the S.S. " Port Kingston" and the S.S. " Port Henderson."

The Secretary was instructed to ask the local Agents for Elder, Dempster & Co., the cold storage capacity of these steamers, and as to whether the empty space referred to, was cold storage. It was stated that the shortage could be accounted for in several ways, viz :—

1.—That as there were no private shippers of bananas it could only refer to oranges That the largest buyers of oranges in the island, the United Fruit Company, were now shipping by Elders and Fyffe's own vessels, not by the Direct Line steamers ; and many other shippers besides that Company.

2.—That as it was late in the season, the prices were too low for the same large shipments of oranges to be made as early in the season.

As the Society had already made complaint about fruit arriving in bad condition owing to bad stowage, the matter was referred to a Committee, consisting of Messrs. Dr. Fringle, R. Craig, and E. W. Muirhead, to send a reply to the Governor.

Savanna-la-Mar Branch. The Secretary read the following resolution from Savanna-la-Mar Branch :—

" With a view of ascertaining as far as possible the duties of the Travelling Instructor, as regards this Parish, and to prevent misconception—Be it resolved, that the Parent Society be asked to state the conditions on which he is appointed, and the duties to be expected of him. That this Society realises the importance of the appointment, and believes that unless regular lectures and demonstrations are given his office will be a sinecure as far as this Parish is concerned."—Moved by Oscar M. Seaton, seconded by S. D. R. Parkinson, and carried.

Resolved :—" That the thanks of this Society be tendered to the Board of Management of the Jamaica Agricultural Society for the retention of Mr. Cradwick in the Western District until the end of the financial year."—Moved by Oscar M. Seaton, seconded by S. D. R. Parkinson, and carried unanimously.

He was instructed to state the duties of the Instructor for the Western District to the Branch.

Half-Yearly Report. The Secretary submitted the draft of his Half-yearly Report together with his estimates. The report was passed, and after discussion, in which Mr. Cameron moved that an addition of £1,000 to the Estimates be asked from the Government, the estimates were referred to the Finance Committee to be dealt with.

Affiliation. The Secretary submitted the following applications for affiliation :—1.—Central St. Andrew ; 2 — Cambridge ; the former being an amalgamation of the old members and others of two defunct Branches—(St. Christopher and Manning's Hill,) and the latter an offshoot of the Port Royal Mountains Branch ; and all the conditions being complied with, affiliations were granted.

Instructors' Reports. The Secretary submitted the Instructors' Reports and Itineraries which had been already published in the newspapers, and these were passed.

New Members. The following new members were elected :—
T. Astwood Smith, Colonial Bank, Kingston ; Fred. A. Petgrave, Port Antonio ; Senor Presidente de la Sociedad Nacional de Agriculturales, San Jose Costa Rica.

The meeting adjourned till Thursday, 20th Dec., at 11.30 a.m.

HALF-YEARLY GENERAL MEETING.

THE Half-yearly General Meeting of the Jamaica Agricultura Society, was held at the Office of the Society, No. 4, Port Royal Street, Kingston, on Thursday, 15th November, 1906, at 12.30. Present :—His Excellency Sir J. Alexander Swettenham, Chairman, ; Hons. W. Fawcett, Col. Ward and Dr. Pringle ; Messrs. John Cameron, R. Craig, C. A. T. Fursdon, E. W. Muirhead, Adam Roxburgh, A. B. Ventresse, A. E. Husband, M. M. Alexander, A. E. Wigan, Arthur Rogers, F. W. Aris, A. M. Lewis, and the Secretary, John Barclay.

The minutes of the previous Half-yearly Report were taken as read and confirmed.

The Secretary read his Report for the Half-year ending 30th September, as follows :—

I have the honour to submit my report for the Half-year to 30th September, 1906.

BOARD OF MANAGEMENT.—During the six months, five ordinary meetings of the Board were held, one Special Meeting in May, and

the Half-yearly General Meeting in June. The individual attendance of members was as follows :

His Ex. Sir J. A. Swettenham, President	1
*Hon. Lt.-Col. C. J. Ward, Vice-President	0
Hon. Dr. Pringle, Vice-President	5
*Hon. W. Fawcett, Deputy Chairman	4
*Hon. H. Clarence Bourne	1
Hon. L. J. Bertram	5
The Very Revd. Father Collins, S.J.	1
*Robert Craig	4
Dugald Campbell	7
John Cameron	2
C. A. T. Fursdon	6
R. H. Hotchkin	4
*Hon. Geo. McGrath	1
E. W. Muirhead	7
Hon. H. T. Ronaldson	3
J. Shore	2
*Hon. R. P. Simmonds	3
R. A. Walcott	1
J. R. Williams	2
The Secretary	7

The Very Revd. Father Collins was elected to the seat vacant through the retirement of Bishop Gordon, in June.

*The following members of the Board were absent from the Island during the period under review :— Mr. Fawcett, 3 months ; Lt.-Col. Ward, 4 months ; Hon. Geo. McGrath, 4 months ; Mr. Robert Craig, 3 months ; Hon. R. P. Simmonds, 3 months ; Hon. H. Clarence Bourne, 3 months.

Some of the subjects dealt with by the Board during the six months are as follows :—

FREIGHT RATES TO THE UNITED KINGDOM.—Representations having been made to the Royal Mail Company, that their freight rates per barrel and box of fruit to the United Kingdom via New York being higher than the Hamburg American rates, made it prohibitive for shippers to take advantage of their steamers, the Company after some correspondence, reduced their rates to 5s. per barrel, and 2s. 6d. per box to Glasgow, as well as to other ports of the United Kingdom.

MEDALS FOR COTTON CULTIVATION.—Sir Alfred Jones, having through the Governor, offered one Gold and two Silver Medals for the three best cultivations of cotton in Jamaica for the year ending 31st March, 1907, the matter was referred to the Board to draw up conditions to govern the competitions and make them known, which was done, and these conditions were published in the Journal for June.

PREMIUMS, IMPORTATION OF STOCK.—With the proceeds of the sale of the three bulls presented to the Island by Sir Alfred Jones, it was considered, first, whether fresh bulls should be imported by the Society, but owing to the difficulty experienced in handling these

profitably, it was decided instead to offer premiums to encourage the importation of pedigree sires,—bulls, pigs and goats, and this has been done, with the result that all the premiums will probably be competed for.

THE CATTLE TRADE—An inquiry was made into the causes of the unsatisfactory state of the cattle trade of the colony, and in connection with it, various recommendations were made to the Government. 1.—That in order to regulate the selling of meat a small annual license should be required of all persons offering meat for public sale. 2.—That so far as possible Parochial Boards should arrange for the efficient inspection of meat offered for sale. 3.—That the duty on meat imported should be increased. 4.—That the existing duty on stock imported for breeding purposes should be removed. These recommendations, however, have not been favourably considered by the Government.

TUBERCULOUS CATTLE.—It having been brought to the notice of the Board that the carcass of a steer had been condemned by the Government Inspector of Meat in Kingston, as unfit for human food as suffering from tuberculosis, while it was stated that the practice in the United Kingdom was only to destroy the parts actually diseased, the Secretary was instructed to find out the laws on the subject in the United Kingdom, the United States, and also other parts of the West Indies, which has been done. The Secretary was then directed to make a digest of these and submit them to the Board for consideration with a view to recommending of regulations suitable for Jamaica.

HURRICANE INSURANCE.—A special meeting of the Board and others invited, was held in May, to hear Mr. Head explain his proposed system of Hurricane Insurance. After a great deal of consideration of the matter, it was decided that the scheme as proposed, was not likely to be taken up in Jamaica, and little if any business would result.

DISEASED COCONUT TREES.—The Government having asked the Board's consideration of a proposal to make the cutting down and burning of diseased coconut trees compulsory by law, enquiry was made into the spread of the most serious coconut disease—Bud Rot Disease,—and it was decided to reply that it would not be feasible to enforce such a law, but that every opportunity should be taken to recommend owners to spray the heads of the trees affected with Bordeaux Mixture, to cut down dead trees, and burn them, while information on the subject of the Bud Rot Disease should be disseminated as much as possible.

INSTRUCTORS.—In July, the Government intimated that Messrs. Elder, Dempster & Company had accepted the compromise suggested by the Society, of £500 a year to be paid to the colony in lieu of the fulfilment of the requirements under the contract to appoint six Agricultural Instructors, and asked the Society to nominate additional Instructors. At the same time Mr. Hirst resigned his appointment as a Local Instructor on the ground of insufficient remuneration. After much consideration, a Joint Committee

of the Instructors' Committee of the Agricultural Society, and the Board of Agriculture met, and the Island was divided into four agricultural Districts, Mr. Cradwick being allocated to St. Catherine, St. Mary and Portland; Mr. Briscoe, St. Andrew and St. Thomas; Mr. Arnett, St. Ann, Trelawny, Eastern St. James and Upper Clarendon, at £300 per year, for his whole time; and Mr. Palache to Lower Clarendon, Manchester and St. Elizabeth, at £200 a year, for 13 days per month, while a new Instructor was advertised for the Western District. With the £320 on the estimates of the Society available for Agricultural Instructors, there is thus a total of £820 for Agricultural Instructors, of which £750 only is allocated at present. As part of the year had passed before the new arrangement was decided upon, only £260 8s. 4d. out of the £500 for this year will be used to 31st March, 1907. The Board has asked the Government to what date the payment of Elder, Dempster and Company's amount will go back, and also how the accumulated amount is proposed to be dealt with. This extension of the work of Instructors, and the more systematic arrangement of districts, will enable the Secretary to respond more to the requests of Branch Societies, to be kept more in touch with the Parent Society by regular visits of Instructors to their meetings, but districts are still too large for the "door-to-door" visitations at short intervals that are required, and would now be welcomed by cultivators. The great appreciation of Instructors work is a cheerful sign.

PRIZE HOLDINGS.—The Competition for Prizes for the best kept Small Holdings began its second round in the parishes of St. Ann, Manchester, and Trelawny, and is progressing favourably. The entries already made are far beyond the previous competition. Keen interest is evidently being taken in it, and some very intelligent correspondence has occurred with the Secretary over the conditions.

EXHIBITIONS.—The Secretary arranged for exhibits of Jamaica Fruit to be shown at the Colonial Fruit Exhibition at the Royal Horticultural Hall, London, and the exhibitors were awarded one silvergilt, two silver, and one bronze medals. The Society was asked to arrange for exhibits at the Toronto and Halifax Exhibitions, but having no funds to ensure a creditable show, applied to the Government for a small grant to enable them to carry through a Jamaica representation, but this was not given, so the matter was dropped.

OFFICE.—There have been 1862 letters received in the six months and 1916 letters despatched on the following subjects:—Board of Management 18, Branches 125, Small Stock 119, Cattle and Horsekind 38, Poultry 99, Exhibitions 26, Journals 123, Hurricane Insurance 17, Instructors 100, Prize Holdings 78, General Products 275, Shows 107, Seeds 36, Sundry letters, including information about Jamaica 702. Total for the half year 1,916.

These do not include agenda, duplicated notices of meetings, or memoranda.

The Secretary visited Trelawny and St. Ann in July and August, and in company with Mr. Arnett, went through the various districts under his charge as Instructor, and addressed various meetings. He reported that he was much struck with the usefulness of Mr. Arnett's work and the great scope for development there. He attended the St. Mary's Show at Port Maria, St. Ann's Show at Brown's Town, the Mears Pen Show in Clarendon, and meetings at Sergeantville, Above Rocks, Red Hills and Frankfield; but owing to the demands of office work he has not been able to carry through as much outside work as Branch Societies expect of him. More Committee work than on an average has occurred during the half-year. Seed Corn, Guinea Corn, selected disinfected Cotton Seed and Rubber Seed have been imported to order, or in view of probable wants, and sold at cost price; and 50 barrels of seed potatoes and parcels of vegetable seeds are on order. Deposits have been made also for importations of pure-bred pigs, goats, turkeys, fowls, and other stock. There have been far more than the average number of callers seeking information,—more than during any previous six months.

The office staff has given the Secretary much concern. A clerk capable of being to some extent his understudy is necessary—more so now than in the early years of the Society, when a qualified Assistant Secretary was thought essential—but the salary now allocated cannot secure a capable and trustworthy clerk, at least, for long. The peculiar nature of the work requires good intelligence and long experience to grasp, and the constant changes in the staff give the Secretary much worry in preventing errors, and in initiating clerks to the work. He is therefore handicapped in the work he is called upon to do, and, almost every absence from the office of any length has occasioned trouble to himself and others.

We commenced the year with a credit balance of £172 6s. 10d. It was estimated that there would be a credit balance carried over to 31st March, 1907, of £154 12s. 10d. The revised estimates to date show this to be nearly accurate, the balance now estimated being £142 3s. 4d.

The premiums offered for the importation of Live Stock will absorb the money realized from the sale of the bulls, which is on deposit in Bank on a separate account.

Copies of revised Estimates to date and Abstract of Accounts are appended. Estimates for 1907-08 have yet to be made up

JNO. BARCLAY, Sec.

STEWED cucumbers are not nearly as well known as they should be. The flavour is very delicate, and often puzzles the uninitiated to know exactly what vegetable is being eaten. The cucumbers are peeled and quartered, and the pieces cut crosswise three times. Stew in salted water and cook until tender, Drain, and serve in a thin white sauce,

ESTIMATES.—JAMAICA AGRICULTURAL SOCIETY FOR THE YEAR, 1906-07.

EXPENDITURE.	Allocation 06 07.	Revised as at ½ yr. 30/9/6.	Estimates. 07-08.
Secretary's Salary ...	250 0 0	250 0 0	
Clerks, Typist, and Office Messenger ...	184 0 0	184 0 0	
Local Instructors (3) ...	320 0 0	320 0 0	
Rent and Taxes ...	48 0 0	48 0 0	
Office Furniture ...	5 0 0	5 0 0	
Printing Journal ...	315 0 0	315 0 0	
Postage and Carriage ...	25 0 0	25 0 0	
Stationery and Sundry Printing ...	35 0 0	35 0 0	
Prize Holdings ...	100 0 0	100 0 0	
Stallion Expenses ...	40 0 0	47 19 6	-
Bulls ...	5 0 0	5 0 0	
Agricultural Shows ...	...	...
Experiments ...	...	...
Exhibitions ...	...	...
Travelling ...	80 0 0	80 0 0	
Telephone ...	7 4 0	7 4 0	
Advertising ...	3 0 0	5 0 0	
Sundries ...	40 0 0	34 0 0	
Total £	1,457 4 0	1,456 3 6	

RECEIPTS.			
Subscriptions ...	£90 0 0	£90 0 0	
Advertisements ...	40 0 0	45 0 0	
Stallion Fees ...	40 0 0	17 0 0	
Small Holdings ...	7 10 0	10 0 0	
Affiliations ...	10 0 0	10 0 0	
Bulls ...	...	...
Journals ...	1 0 0	2 0 0	
Sundries ...	1 0 0	2 0 0	
£	£189 10 0	176 0 0	

ABSTRACT.

		£	s.	d.
Balance brought forward from 1905-06	...	£172	6	10
Estimated Income	...	178	0	0
Government Grant	...	1,260	0	0
Estimated total Expenditure to 31st March 1906	...	1,598	6	10
Estimated balance at 31st March, 1906	...	142	3	4
Estimated Income 1907 08	...			
Estimated Government Grant	...			
Estimated total income 1907-08	..			
Estimated Expenditure	...			
Estimated balance credit 31st March 1908				

The meeting was then declared open for discussion.

Mr. Ventresse asked the Secretary if the Society had sent anything at all to the Toronto Exhibition.

The Secretary said nothing at all, they took no part in the Exhibition whatever.

Mr. Ventresse said that he visited Toronto Exhibition this year, and he saw a display of Jamaica products, consisting of a few old coconuts, some pieces of wood and exhibits of grapefruit. These exhibits were absolutely disgraceful, and he would suggest that unless decent exhibits could be sent, no part should be taken in the next Toronto Exhibition. Further, the gentleman who was in charge of the exhibits, to his knowledge, told a Canadian enquirer who was thinking of investing capital in this Island, that Jamaica was the worst place in the tropics for investing capital, and that the natives were worse than the Island.

Dr. Pringle said that he thought provision should be made on the estimates to provide a competent assistant to Mr. Barclay.

Mr. Craig said that there were a good many things in the office that required revision, and that these matters would come on with the estimates which had been referred to a Committee.

Mr. Ventresse said that he saw on the agenda the question of the import tax on cattle imported for breeding purposes, was down for discussion. He suggested that a list of all the cattle imported for breeding purposes during the past five years be compiled, and certainly the return of all that was left now would be surprising ; it was within his knowledge recently that three out of four cows imported died shortly after being brought into the Island, and he thought such a duty was not only unnecessary but was inconsistent altogether. He urged that the Society should do all in its power to induce the Government to remove the duty.

Mr. Craig said he desired to speak on the condition of the roads of the Island, some of which were in a shocking condition, and many of which would be positively dangerous in the present state to automobiles. The cause was two-fold—bad construction and improper maintenance of them ; the time had come for the adoption of modern methods in the making and for the up-keep of roads ; he would suggest to His Excellency to consider the question of importing more steam rollers.

Mr. Muirhead supported Mr. Craig and stated that one thing in connection with the roads he particularly wished attention should be paid to was the sharpness of the curves ; many of these were dangerous and might at moderate expense be remedied.

After discussion, the report was adopted and directed to be printed in the Journal.

DISTANCE OF PLANTING COCONUTS.

A good deal of uncertainty seems to exist with regard to the best distance of planting coconut trees, various distances being recommended, from 24 feet upwards.

I have carefully observed the health of the trees where planted far apart, and when planted close. It is an axiom that plants require light and air, not only in the leaves, but also at the root, and if they are planted so closely that they cannot obtain this, they are pretty sure to suffer sooner or later. Soft tissue plants such as coconuts, are particularly liable to blights, rot and fungous pests. There is also a question of bearing in relation to distance in planting.

I notice that when the trees are planted close, it will be found that here and there a tree more vigorous than the rest bears heavily, while the slightly weaker trees do not bear anything like so well. I recently measured the distance of trees at Bogue estate, near Montego Bay; the trees there are planted at 33 feet apart, on the good land where the trees have grown well, it is quite dark under trees about 12 to 15 years old, and in these rich spots where the trees are thicker, there is the greatest mortality among the trees; where some trees have died out, and in this way the trees remaining are thinner, *i.e.*, at greatest distances from one another, they are bearing very heavily.

I also took notes of some trees at Blue Hole, in Hanover, in some places trees of a little over six years of age were fully 36 feet in diameter, *i.e.*, measuring from outside to outside of branches, the branches when stretched out straight were fully 20 feet in length, which would give the trees a diameter of 40 feet if they were held out straight.

It is quite clear from my observations, that each tree must have sufficient space to be perfectly free from the next when they come to maturity, otherwise, even supposing that there is no mortality from the close planting, the poor bearing of the close planted trees, as compared to those planted far apart, far more than does away with the advantages gained of planting another half-dozen trees to the acre. Of course, on moderate lands, it may be long before the trees can fully occupy so large a space, although they will do so perhaps when they come to their full size. In such cases unless some other crop can be grown through the trees, or animals grazed between them, waste of land would occur; this might be got over by planting a tree in each quincunx, and cutting it out as the room is required, although this is a very dangerous thing to recommend in Jamaica, for we often see the first part of the proceeding carried out, but very seldom find a man with courage to pursue it to the end, which results in the over-crowding which has been so disastrous to other cultivations as well as coconuts.

W. CRADWICK.

R A M I E.

Of all textile plants the one which furnishes the best fibre, containing at the same time the least gum, is a plant of the Urticaceae family, named after the German botanist Boehmer, "*Boehmeria Nivea*."

In its raw state, that is to say, not yet degummed the fibre goes by the name of China-Grass, very improperly so, for the plant does not grow exclusively on China, and moreover is not a grass. The degummed fibre is called Ramie, an article for which there is a constant and increasing demand.

The Ramie fibre is one of the finest, most brilliant and at the same time, one of the strongest of vegetable fibres. Its commercial uses are so varied that it is hard to tell where it cannot be employed. It makes the finest gossamer cloth, and the strongest and most durable canvas for sails; combined with linen and cotton it increases their strength and lasting qualities, and as for rope and other coarser products, its merits are too well known to be further mentioned.

Cultivation.—The ramie plant requires as even a climate as possible, and a moist heat; regular rainfall and proper planting at the proper time are vital requirements which must be fulfilled by the planter wishing to obtain fibre of the finest quality; its cultivation resembles that of cotton closely; a steady rainfall when the plants are young, and dry weather when they have matured being essential.

The best soil is a fine sandy loam, which must be well drained, as stagnant moisture is the ramie plant's worst enemy; it causes the roots to rot, which they do very easily, thus of course killing the plant, literally drowning it.

The seasonable parishes in this Island are well suited to its cultivation, especially the valley sides, offering ideal sites. Its root-system bears a striking resemblance to the strawberry plant—it sends out runners or racemes, which when strong enough, can be detached from the mother plant and planted out separately.

It is, however, not so much my intention to dwell on the methods of planting and cultivation as on the harvest of the ramie stems and their subsequent conversion into the china-grass of commerce.

The plant is fit for cutting as soon as the flower appears. The stems are five to six feet high, and the thickness of your finger. The cut and ripped stems are passed through the machine mentioned briefly in the last issue of the Journal (it is called the Aquiles, and is manufactured by R. Boeken & Co., Limited, Dueren, Germany).

The advantages of this machine are, firstly, its low price, (£60), secondly, its extreme portability, (two men can easily carry it about), thirdly, the low power necessary for its working, and last, but not least, its freedom from delicate parts, easily broken and hard to replace.

As indicated before, the machine is built on an entirely new principle, the most valuable result of which is that the long fibres

are delivered long, unbroken and in parallel layers, the three points which together with the colour, determine the market value of "China-grass."

I have written far more detailed description of this new machine, which I hope will soon be placed before the readers of the "Journal."

After treatment in the machine, the fibres are dried in the bales and shipped.

Before being sent to the looms, they have to be chemically treated and "degummed." Information as to the method best adapted to degumming is at present not to be had.

Yield — You may rely on a crop at least every six months. Each plant yields on an average 45 stems each cutting, that is to say, 180 stems per year per plant, or 72,000 plants per acre, if planted 4,000 to the acre.

The average weight of the stems, stripped clean being 50 grammes, the annual yield per acre will be 36,000 kilogrammes or 64,800lb.

Taking into calculation an average yield of five per cent. of raw fibre, the acre will yield $1\frac{1}{2}$ tons of dry China-grass, at a market price varying between £18 to £22, according to the care bestowed in keeping out impurities and producing a uniform long-fibred, even-coloured product. The acre will thus show a yield of £22 10s. to £27 10s. Allowing 25 per cent. for expenses (a liberal allowance based on labour, twice as high as Jamaican labour), the net income per acre will amount to £18 to £22, a figure which should prove attractive enough perhaps to induce some planters to at least give ramie cultivation a thorough and fair trial.

F. DE V.

B E E S.

ONE cannot help wondering over the difference in bee-keeping to-day and bee-keeping 25 years ago. The then mere hobby, which was a luxury for the few, has gradually developed into a recognised industry, and the production of tons of honey for the many.

Bee-keeping a quarter of a century ago, was carried on by the aid of the ancient straw skep, and box hives with fixed combs. To-day we have the movable comb hive, the honey extractor, the super clearer, and, not the least in value as a bee-keeper's indispensable, the wax extractor. The wax extractor is not a new assistant to modern bee-keeping, but until quite recently, the price of wax extractor placed it beyond the reach of all but well-to-do bee-keepers.

Now, a useful wax-extractor in the use of which the heat of the sun is utilised to extract the wax from combs and cappings may be had for six or seven shillings. The cost for fuel for use when wax has to be extracted is very considerable under the old methods of boiling or baking the comb, so that even the humblest bee-keeper will find the outlay for a Solar wax extractor repaid in two seasons, and this is not the only thing worthy of consideration.

Wax rendered by the use of the Solar extractor is of much better quality than that rendered by the old methods, and its marketable value is much higher. There will not now be any excuse for throwing away, burning, or burying old combs, which may be melted down for the wax, which, turned into pence, will considerably supplement the income from the apiary.

Many apiaries are made untidy by the owner throwing the odd pieces of comb into the corners, and the trampling of the trimmings of comb-foundation under foot in the apiary house.

TEST OF SEED POTATOES.

A very interesting test of seed potatoes has been carried out by Messrs. Sutton & Co., Reading, England, using Scotch, English and Irish seed. It has been the custom to prefer Scotch seed, but the result of this test is that Ireland will in future also be a competitor for the supplying of seed potatoes. In some of the tests the Scotch seed gave the highest return, but the whole result was slightly in favour of Irish seed, the English seed being quite out of it. On the other hand, at the test carried through by the East of Scotland Agricultural College, in Mid-Lothian, Scotch seed gave the best results all along, and English seed was quite as good as Irish, all showing that in all tests much depends on the place where the tests are carried through.

CITRUS CROPS.

THE Florida citrus crop is estimated to be in the neighbourhood of 4,000,000 to 4,000,500 boxes of oranges, grapefruit and tangerines. Florida has a clear market in the United States in November, December and January. California is not a competitor until February. From then Californian markets 12,000,000 boxes in the year. Jamaica has a free run in the markets from August till November, but the quantity sent now to the United States is comparatively trifling, probably not more than 10,000 barrels. Formerly, the annual importation was 100,000 barrels on an average, but the high duty, one cent. per lb., has virtually killed the market for Jamaicans, except during the three months mentioned. Just at the time when Californian oranges are rather dry and shrivelled, and therefore somewhat tasteless, the Jamaica orange is a welcome change to the fruits that are available, but as soon as other varieties begin to come in it is difficult to sell them, they are so acrid and so full of seeds.—“Florida Agriculturist.”

It might occasion surprise in Jamaica to hear of our oranges being called sour and acrid, but when we remember the little hard balls of green fruit that we often send away in August and September, we should understand this criticism. The only hope for Jamaica in the United States market is so to work the orange trees that the fruit will come in early, then in spite of the high duty, oranges will pay. Almost the same applies to the British market, only instead of Florida oranges it is Spanish oranges that compete with us.

THE VALUE OF CATCH CROPS.

ALTHOUGH it is not good agriculture to crowd crops together so that the various plants cannot get air or room to grow to their best, nor to grow two kinds of crops together of the same nature or following on each other, yet nearly every crop has a suitable companion or a nurse crops that grow well with it. The companion crop is a catch crop, so in a sense is the nurse crop. The most valuable catch crops possible to be grown are peas and beans. Planted with corn or just before it, they fully occupy the ground, and when the seeds are picked they return some income, the roots and vines fertilise the ground for the corn—and further than that for crops following the corn. It is only necessary to plant two pieces with corn, one with peas between and the other without, to note the decided difference in favour of the cobs of the first lot. But it must be borne in mind this depends upon the proper system being followed. To plant the peas and corn in the same hole gives neither a chance. One of the objects of the catch crop of peas is to save weeding by covering the ground, as well as to pay for the weeding. If the corn is planted 4 x 3 the peas may be planted between the rows only, if bushy or running plants, if red or kidney beans, they can also be planted in the rows at the same time as the corn. With black eye peas it is often best to plant in rows a month before the corn. All the land between yams may be profitably filled up with peas. Coccoes and bananas are catch crops in a sense to coffee and cocoa as well as nurse or cover crops. Coccoes (tannias) are generally profitable to grow, because the tubers sell well and the head and stalks are valuable as pig feeding. The plant does well to grow through young bananas, planted 4 feet x 4, and enables young cocoa to be planted six months sooner than waiting for the shade of the bananas. Corn on the other hand, makes a very poor crop as a catch crop among young bananas, choking the bananas and heating the soil. Coccoes and peas then are the best companion crops for young bananas, and these with bananas are the best nurse crop for young cocoa and also young rubber.

STOCK NOTES.

BREEDING COWS.—A correspondent writes that the age to stop breeding cows should depend on the quality and condition of the animal. He has known them kept up to 12 years old and much older. He has one that is 18 years, been milked daily with the calf fit for a Show. We know of a cow that has had 17 calves and which still lives.

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AGE OF COWS.—We have had some correspondence about the age that cows can live and remain profitable. As a rule here a cow is said to be aged at 10, whereas she is really in the prime of life then and good for another 5 years under good, ordinary conditions. In Eng-

land this year two aged cows have done better at Shows than younger competitors. At Tring Milking Competition, one of the biggest tests, a cross-bred cow "Doctor 24 years old, belonging to Capt. J. W. Smith Neill, took first prize, and another remarkable cow belonging to Mr. T. J. Wilkins of Bretford, who bought her as a calf two and-a-half years old at Rugby market, has produced no less than 18 calves. Between her 17th and 18th calf she was milked two years in succession without a break, and at the present time is giving about eight gallons per day on ordinary rations with no forcing. She is a cross-bred, but principally Shorthorn.

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BARREN SOWS.—An American pig-breeder says: I have noticed reports of breeders who have had trouble in getting sows impregnated, although in heat and served regularly. One winter I had my sows too fat—at least, so it was believed by breeders visiting my herd. Five of my sows failed to conceive twice in succession. I saw that would soon throw pigs late, if the sows raised any at all. I got the druggist to crack hemp seed for me, and I mixed a gill of it, ship stuff and water, and gave each sow this daily allowance. At the succeeding coupling four of the sows conceived. I continued the allowance for the fifth sow, and the next service she was impregnated. This may or may not be a universal remedy. I simply relate a bit of experience. The first I heard of it being tried was by a Kentuckian, who bought a fine show heifer, reported barren. He changed her from grass to dry food, and gave her hemp seed daily for three weeks, and bred her when she came in heat and she raised a calf. The remedy is also good to prevent abortion.—Exchange.

* * *

SALT FOR ANIMALS.—Salt makes animals more lively, strong, and capable of resisting disease. Their flesh is harder, and the functions of the organs are more regular. Their digestion is better, and they can subsist on fodder than otherwise might be injurious to health. Moreover, with the assistance of salt they can extract more nourishment from a given quantity of fodder, since the flow of the digestive liquids is more copious. Hence, salt is of special importance,

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DUAL-PURPOSE COWS.—In the United States they "have no use for" dual-purpose cows. They say such an animal is impossible. Yet they believe in dual purpose fowls. The fact is they can market their worn-out Jerseys and Holstein cows, and impossible-to-be-fattened dairy steers, in their canning establishments which do not exist in the United Kingdom,—at least to any extent. But the British farmer—no matter how he is criticised—has in his dual-purpose cattle produced the greatest triumph in animal breeding the world has known, and he himself is the greatest triumph in farming in the world at the present time. With his high rented land, his fields often surrounded by game preserves, foxes taking his poultry, pheasants feeding on his seeds, and rabbits filling up on his young green crops, he has also to compete against Protection, Government co-operation, in the United States, and Continental countries, free land in Canada, the United States, the Argentine and else-

where, cheap labour in Russia and India, cheap sea and rail freights. But he raises the largest crops per acre in grain and root crops, and the best cattle in the world, and makes a living—a good one. His best cattle are his dual-purpose Shorthorns.

The one great dual-purpose breed is the Shorthorn. Other breeds equal or surpass them as special-purpose animals, but as dual-purpose animals they stand almost alone. It was largely this quality that made this breed the great farmer's cow in so many areas, so widely distributed. Remembering this fact, it is to be regretted that the breeders of these cattle should have so largely neglected milking qualities. It is rather a sorry sight to see pure-bred Shorthorn cows, the mothers of the future breeding stock of this country, that cannot raise their own calves. True, the best type of Shorthorn is a handsomer animal, a better prize-winner, perhaps, than the dual-purpose type, but the future of the breed, the milk industry of the olden farming sections, and the general prosperity of our farmers, will be best served by a return, a frank and full return, to the dual-purpose type.—“Farm Life,” England.

SOUTH DEVON CATTLE.—The sale of South Devon Cattle in Devonshire attracted a good company, and prices displayed very much activity and brisk demand for those cattle, and though the highest price in the sale was but 67½ guineas, a very low figure compared with the excessively high prices that have been and are being paid for Shorthorns. Yet it must be remembered, that but a very brief period since the sale of a herd of South Devons would not have attracted anything like the attention given to the sale noticed, which is probably due in a great measure to the good account one or two specimens of the breed have given in the London Dairy Show and at other places during the last two or three years. A good dual-purpose class of beast, and with a maximum allowance of points obtained, the South Devon has risen immensely in public favour with the dairy farmer. [Mr. O. L. Walker bought two bulls at this sale which are now in the Island and five bulls of this breed have been imported within the last three months.]—“Mark Lane Express.”

THE TRUE TEST OF A COW.—A dairy cow differs from any other animal on the farm, inasmuch as her value can not be truly estimated without an accurate knowledge of the quantity and quality of milk she produces during full succeeding milking periods. A beef animal, or a hog, can be fairly accurately judged by its appearance and weight, a horse by its conformation, action and other evidences that appeal to an observer, a sheep by external evidence and a physical examination, but even the most skilled expert can be deceived after a careful examination of a dairy cow. A cow can make a great name for herself by conforming to the recognised type of a popular breed or by a test covering a day, a week, or a month; but a test conducted during an entire milking period, under ordinary conditions of feeding and care, while undergoing the functions of regular breeding is the strongest possible evidence of a cow's excellence.

SELECTING DAIRY CALVES.—The "Practical Farmer" gives this method of selecting calves to raise, which is allowed by many successful dairymen: Turn the little calf on its back and see that it has four well placed teats, that is, wide apart, and two rudimentaries, or extra teats. Next see that it has a large udder cord which you can feel on the side, rubbing the finger back and forth. Such parts are made in proportion and a large udder cord indicates that the calf, when it becomes a cow, will carry a large udder, because a large cord is necessary to hold this up. Next look in the calf's mouth, and if there are eight teeth well through, you can safely raise that calf. If there are only two teeth put through, reject the calf because, as a rule, this indicates the constitutional vigor of the mother was not sufficient to mature the calf fully before it was born. Such a calf will be likely to have a weak vitality when it grows up, as well as during its younger days."

* * *

SALT for CATTLE.—The average allowance of salt for cattle should be 3 ozs. per day. Rock salt only should be used. A lump may be placed in the manger or in small boxes scattered about the pasture, to which all live stock on the farm can have access. This is the most satisfactory way of using it, as there is then no danger of certain animals consuming excessive quantities. By these means the most beneficial results from the use of salt are obtained.

* * *

IRISH BACON.—The Irish Department of Agriculture have recently carried out an inspection of all the important bacon factories in Ireland, and have also made inquiries as to the trade of Irish bacon amongst wholesale bacon factors in London and the North of England. For the production of bacon of the highest quality it is necessary (1) to breed suitable pigs, (2) to feed the pigs properly, (3) to ensure that only healthy animals are used, and (4) to cure the pork under the best sanitary and other conditions.

* * *

CONTESTS for MILKERS.—One of the most noteworthy features of this year's London Dairy Show was the contests among milkers to the number of 121, of whom 75 were women, 8 girls, 28 men, and 10 boys, all animated by the desire to show their skill in the humble but necessary art of milking the cow. The fact that so many women travelled to London from Scotland, Wales, and 25 other counties as far apart as Northumberland and Cornwall, in order to demonstrate proficiency in their calling as milkers is in itself remarkable. They compete for prizes (mainly) contributed by Lord Northbourne, ranging from £15 downwards, and certificates given to each competitor who was in the opinion of the judges, an expert milker. In awarding the prizes the judges were instructed to give points, according to a fixed scale, for the manner of approaching the animal and style, of work, cleanliness, and clean stripping.

* * *

CHEESE.—There has been a much increased demand for cheese in the industrial districts of the United Kingdom, to take the place of tinned meats. The farmer has benefited thereby in increased prices, and the people will benefit in health.

POULTRY NOTES.

Ducks.—Do ducks pay better than hens? That the hen can be kept a year with less labour than a duck necessitates, and consumes less food, is well known; but, the duck has an advantage over the hen which places her far in the lead, and that is the rapid growth of the ducklings. While a chicking is slowly reaching a marketable age and weight, the ducklings are up and marketed long before. In three months from the time the eggs are put in an incubator, the ducklings are ready for market, and that too, in the face of the fact that four weeks of the thirteen are required for incubation. This leaves only nine weeks for growth, but in that period the ducklings may reach 4lb. or 5lb. weight, while the chicken, with the advantage of only three weeks for incubation and with ten weeks of the three months for growth, will do well if it reaches 1½lb. Hence a duckling will make more than three times as much meat up to the age of ten weeks as a chicken. The cost is the same per pound of meat produced in each case. Now, if 5lb. of duckling can be produced in the same time required for 1½lb. of chicken, it is equivalent to more than three crops of chickens, and though the duckling eat more food, it grows more rapidly, and the cost per pound of meat is the same. Another advantage is that the duck lays most of her eggs earlier in the season than the hen. The eggs of the duck are also more fertile, and better hatches are secured. The young duckling has a good appetite from the start, is not very fastidious, and is subject to but few drawbacks; cholera, roup, and lice have no terrors for it. Give the young duckling half the care and feed allowed the chicken and it will be happy and grow fast.

* * *

Eggs.—During October and November all stock in Jamaica fall off, horses look rough, cows diminish in their flow, few hens lay. Special attention should be given to having chickens hatched in February and March so that the pullets will lay in September and continue to lay when eggs are dear. The time to prepare hatching in February, is *now*. Select those birds that have laid best as pullets, and any exceptional layers of second season hens; mate them to an active and vigorous cockerel, full grown, not less than seven months old. Feed well, but let the fowls have exercise to get the feed. Break the corn and scatter it so they must look for it. Once a week give a dose of Epsom salts either in the water or in soft food to all the fowls, in the proportion of a half teaspoonful to each grown fowl.

* * *

LAYING COMPETITION.—Whatever the result of the various egg-laying competitions throughout the world—and White Leghorns invariably top them, followed by White Wyandottes, Black and Buff Orpingtons—the Minorca is a breed that suits the dry lowlands of Jamaica, and crossed with any large-bodied breed, that cross suits the upland.

COMMENTS.

Eggs.—Of all the articles that are now imported here for food, the fact that for nine months of the year now we are obliged to import eggs is most deplorable. There are so many people wishing to add a little to their income, and land at least, is so generally available that there is absolutely no excuse for not supplying ourselves and our visitors, by the thousand, with eggs and fowls of the best quality. But of course a certain amount of knowledge and training with some natural aptitude are necessary to success. A common expression heard is that there is nothing in keeping poultry, that it does not pay. Well it pays elsewhere under more difficult conditions, but with people not averse to learning and taking trouble to learn and know as much as possible about their subject. Would any other industry pay with the same consideration given to it? If people cared as little about horses as they do about hens, we would soon also be importing ponies for the rush of the tourist season. The poultry industry is essentially a side issue in agriculture, something to be run in conjunction with the house, stables, or dairy. It seldom pays directly if all the food has to be bought. Pig-rearing does not pay either in that case, nor cattle nor horse raising. Indirectly poultry may pay, even though all food is bought, because eggs are a necessity, and to have them at hand, fresh and from clean-fed hens, makes them worth a great deal more to the user than bought eggs from unknown sources.

* * * *

Shows.—Kendal Show held on the 28th November was favoured with the best of weather, and there was a good attendance from all parts of the island. Horse and cattle stock made interesting competitions. We do not think there has been any more interesting show than the competition in the horse classes, the entries being numerous, and many new animals entered, so that the competitions were keen. Unfortunately the Agricultural Products Section was as poor as usual, but to relieve its poverty there were many exhibits of really fine citrus fruits, perhaps the best that there has ever been at Kendal, very attractive navel oranges being shown by several competitors. It was a satisfactory Show, in having a substantial gate and a good credit balance to carry forward.

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The next Show to be held will be in connection with the Appleton Agricultural Society, at Siloah near Appleton. The date has been changed from the 28th to the 26th of December, which being a public holiday has been thought a more suitable day. It will not however, suit Judges, and those coming from a distance, as few will relish giving up Christmas-day to attend the Show.

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On the first January the Savanna-la-Mar Show will be held and we trust the people of Westmoreland and the near by parishes will give it their hearty support. It is a convenient date for a Show.

On the 24th January, Porus Agricultural Society has arranged to hold a Show for the first time. This is a very central place for Clarendon and Manchester people, the show ground being only a few minutes walk from the station. His Excellency the Governor has promised to open this Show. Being such a convenient centre there will no doubt be a large attendance and good competition.

On the 28th February Montpelier Show will be held. This was a great Show last year, and as arrangements are already well forward there should be no chance of a hitch about it. The Prize List is already printed, and an attractive one it is.

Christiana Agricultural Society originally arranged to hold their first Show at Christiana on 7th March, but the date has now been altered to Thursday, 14th March. As this date is in the best of the tourist season and the district has magnificent scenery and a cool climate, it should be well patronized from Mandeville and we hope arrangements will be made for the conveyance of visitors from that part.

On the 14th of February the Trinity Ville Agricultural Society will hold a Show, postponed from early this year, and as this is the only Show being held now in St. Thomas, while the location at Serge Island is very convenient, there should be a very large turnout from all parts of St. Thomas.

A Show will be held in connection with the Red Hills Agricultural Society at Maverly, Lower St. Andrew, on the 26th inst., grounds loaned by the President, Mr. H. G. T. Drew, for the occasion. A very suitable Prize List has been arranged and substantial prizes are offered.

COMMERCIAL PRODUCTS.—The Australian Colonies are so far from the best of the worlds markets as they can possibly be, but distance does not frighten them as it appears to frighten us who are as near as they are far. They have their special commercial agents in South Africa, in Great Britain and on the continent of Europe. They ship most perishable products, oranges and apples, butter, eggs and poultry. Their Governments believe it to be their duty to encourage and assist in the development of the producing industries in every possible way. But they are ably backed up by the people. They say to their farmers—you do all you can to raise the best products—that is private enterprise—and we will step in when private enterprise fails in finding markets for that produce, and to protect our good name. That is where we fail. We scramble for markets casually and disconnectedly, competing with each other, cutting out each other, no organization, no cohesion, no co-operation. In these times with disciplined, organised, co-operating competitors in almost every line of produce,—and what is more great commercial combinations or organisations gaining more and more the buying, carrying and selling of some of our chief products, into their own hands, there is great need for every agriculturist to think seriously

over the position. What is good on the one side, may not be good enough for the other side, unless that side does likewise,—that is combines to act in unity to secure fair dealings and local prices in reasonable relation to the selling prices of the product.

* * *
SEED.—We are constantly being asked to provide seed,—vegetable, cow peas for green dressings ; guinea grass, guinea corn, maize, and so on ; and we try our best to get the most reliable to be got. But there are many circumstances in the seed trade which prevent the absolute certainty of typically good results. Still to prevent misconception, and to know as nearly as possible where the blame of poor results reported to us may rest, we make it a point to test all seed, not only in a small test box, but under field conditions. Experiments like these take a great deal of trouble and some expense as we pay for our seed like others, yet it is satisfying to ourselves, and prevents, as we have said misconception.

* * *
EGGS.—Eggs have been very scarce from September, costing 1s. 6d. to 2s. a dozen, and the outlook for a sufficient supply for tourists between January and March, is not promising. As we write imported eggs are being sold in the stores as “fresh from the United States.”

* * *
SHORTHORN CATTLE.—It shows how greatly the progeny of the same sire may differ in quality when at the great Shorthorn sale in Aberdeenshire calves of the same age by the same bull varied in price from 34 to 800 guineas.

* * *
PRIZE HOLDINGS COMPETITION.—The judging for St. Ann was carried through in November by Mr. Cradwick and Mr. Arnett, but the awards require so much consideration that they cannot be presented at the December meeting of the Society, and the names of prize winners will not be published until February Journal. The judging in Manchester originally set down to begin on December 17th has had to be postponed until 9th February, as no Instructors were available to take the judging. The judging for Trelawny will not take place until the beginning of March.

* * *
BRANCH SOCIETIES.—Many Secretaries of Branch Societies have reported that there is a lack of interest at their meetings as they do not seem to have subjects to discuss. This, to us is extraordinary, because we would have more subjects to discuss at meetings than could possibly be got through, even if meetings were held weekly instead of monthly and three monthly. If members cannot be got to read papers on the treatment of the different kinds of crops, how best to work the different soils of a locality. how best to raise stock and to treat them in certain diseases common to localities, then both the current and back Journals should be taken up, articles read, discussed and criticised, and if anything is not clear to the meetings we should welcome correspondence on the subject whatever it is. If subjects to be taken up cannot be thought of readily we shall be glad to suggest some to the local Secretaries,

STOCK EXCHANGE.—We receive numerous letters asking whether we know of anybody who has stock willing to exchange for other stock, and we often manage to effect an exchange. It often happens, especially with small stock that someone has used a sire for one year and has no particular desire to sell it, but to get another of the kind, but no relation, for the sake of fresh blood. After a week or two it is too much a strain on our memory to remember everybody who writes, and many of correspondents are members of the Branch Societies only paying 1s. per annum, and receiving more than four times that value in Journals alone. We think therefore they ought to take advantage of the Members Advertisement Column; to encourage this we reduce the minimum charge from 1s., making it 6d. for 12 words, and 3d. for every additional six words.

* * * *

GOOD POINTS IN RUBBER.—What gained the Judges' favour at the Ceylon Exhibition in testing a sample of rubber, said Messrs. O. G. Devitt and Cyril K. Smithett, two of the judges, "The points upon which we went were, generally speaking, strength, appearance, brightness in colour, resiliency, and smoothness of surface, it was not the evenness which was kept in view, but the freedom from a bubble surface. The rubber tested had to stretch clear, and had to reach a certain breaking point to answer the test satisfactorily. Lack of care, or the use of too much acid, probably caused some to break. Most of the strongest samples were either old rubber or young rubber smoked. Some of the Ceara rubber shown was exceptionally strong.—"Tropical Life."

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The two things," said Mr. J. B. Carruthers, after the Ceylon Rubber Exhibition "that seemed to stand out most were the making of block rubber, and the fact most important for Ceylon, that rubber will grow at the higher elevations. The show has taught us that we cannot do better than block rubber where originally it was turned out in crepe or sheet, and you can block any kind of rubber. Whether we should take out all the moisture before blocking and whether our cleansing and drying methods are too drastic we have yet to learn.

* * * *

JAMAICA SWEET-MEATS.—At the Barossa Creamery, Mandeville, Mr. Kerr is now making Jamaica Sweet-meats put up in neat boxes. These include such interesting specialties as sweets flavoured with Rum, Pimento Dram, Limejuice and other native products. At Kendal Show where Mr. Kerr had an exhibit, he sold £9 worth of these sweet-meats, and £1 worth of his butter.

* * * *

PIGS.—Three Poland China Pigs from Manchester receiving no hand feeding but having access to a good deal of casual feeding in connection with stables, were offered to the local butchers who refused them at 85/ each. On sending them to Col. Pinnoek's Bacon Factory they realized 58/, 55/ and 49/, respectively. Now this shows the value of having our own industries in every direction where we can reasonably hope to compete with imported products. The owner of the pigs received satisfactory prices. Col. Pinnoek

got the type of pig that he wants, the bacon is in demand, and every pound sold saves money to the Island. The next thing we want is a cheese as well as a factory for butter and ham. We also want somebody to put up barrelled beef from our surplus cattle. We want also all the cattle hides saved to be made into leather here, and a boot factory started. Looking to our imports there is money in all of these, and they could be started with local capital without going abroad at all. It only wants a reasonable trust in each other, reasonable precautions and hard-working Managers.

HAT FACTORY.—The making of Jippi-jappa hats has increased greatly, but has been confined practically to one corner of the Island. The demand for them has always been something like a thousand times greater than the supply, and it continues from year to year, in spite of our having only a small supply in the local markets. The local demand has increased greatly due to purchases by tourists. There is no reason why girls should not be making hats all over the Island, instead of so much Fancy work, for which the demand is very limited. Hat-making requires some skill, but the art is not difficult to learn. A Factory has been started in Kingston, and there girls may learn and later be employed. This could provide, if taken advantage of, clean, light employment for girls which is much needed. Messrs. Kerr & Co. have a Hat Factory at Montego Bay. There is plenty of room for more hat-making in the colony.

PINE-APPLE CULTIVATION.—Writing on the subject of "Pine-apple Cultivation," a writer in the "Journal" of the Jamaica Agricultural Society says: "The banana and the orange, the two great commercial fruits of Jamaica, can be bought in the streets of London at 1/ per dozen, but a good pineapple cannot be bought for 1/." We can assure this writer that the Jamaica banana can, as often as not, be bought in the streets of London from four to two a penny, or sometimes 43 for 1s. And if the Jamaicans saw the rough way in which most of the fruit is handled in our gutters they would recognize that it fetches as much as it is worth. We do see some good Jamaica oranges, and some very indifferent ones, but we seldom see a good Jamaica pineapple, price 1/ or otherwise. More's the pity.—"The Fruitgrower," London.—[We could know all that, and know how to remedy it better if we had a good sharp business man to look after Jamaica interests in London and the United Kingdom generally.]

CANADIAN APPLES.—Consignments of American and Canadian apples are reaching the Glasgow market. They have arrived in very bad condition. The brokers have been selling several days a week nothing else but "slack" barrels. Some dealers who bought have assured me that out of 10 barrels they could only get five of sound fruit. The question occurs to me why this class of fruit is allowed to be sold at all. If the local growers were to send in fruit in that condition they would be told in very round terms that their "stuff" was unsaleable and be threatened with prosecution into the bargain. The fact appear to be that whilst the brokers sell the growers' fruit on commission, they are themselves the speculators

in the foreign article, and it is to their own interest to push the sales however bad the fruit may turn out.—“Fruit Grower,” London.—[We thought it was only Jamaica oranges that arrived in bad order. What about the special inspection in Canada? We ourselves received barrels of apples from Halifax marked choice No. 1, yet the fruit consisted mostly of little green, half-fit, ungraded, more than half-rotten apples.]—Ed.

HORTICULTURE.

VEGETABLES.—It is not so easy as it looks to grow vegetables in plenty for the tourist season here. In spite of the outlook for a large number of visitors on our shores this year, and of supplies being possibly wanted for the Canal Zone, we rather think that very little more effort has been made this year than last. Large supplies of vegetable seeds have been sold, but mostly in very small quantities to country people. Our seasons come in rather awkwardly for people who think that no more effort is required, or should be required, than to break up the soil fine in October, sprinkle the seed on the land early in November, and wait to transplant the young plants a month or so later. This would do perhaps if the heavy rains would come in the second or third weeks of October and stop by the end of the month. Vegetables planted immediately after that with only light showers to help them would grow steadily, and be ready from the middle of January. But the heavy rains now come—or at least have done so for the last four years, in the first fortnight of November, and those who have planted before that, find the tender plants just springing in the seed bed are apt to be beaten down and damaged if not destroyed. Now, vegetable-growing means taking trouble and a great deal of care. If we are to get vegetables ready by the middle of January, we must make seed beds, shaded and protected by an arbour, in a way that heavy rains coming will not spoil them, and so that they may be gradually exposed to the sun and hardened off—and all this is neither difficult nor expensive. Then the plants are well on by the first or second week in November, strong enough to be planted out and stand heavy rains. This applies to tomatoes, garden egg, and cabbage especially. Another way is to have ranges of seed boxes set up on posts with cheap coverings (plantain mats for instance) ready to put over in case of beating rains coming. In this way we can gain a month just when that month makes the difference between having vegetables to sell from January to March, and not having them until the end of February for the growth is quicker in the well cared for shaded seed bed or box.

WEST INDIAN AGRICULTURAL CONFERENCE.

ARRANGEMENTS are now being made by an Organising Committee for the holding of a West India Agricultural Conference in Jamaica in January next.

His Excellency the Governor has allowed the Port "Kingston," to call at Barbados on her outward and homeward voyages and there she will embark members of the conference from the other parts of the West Indies. It is expected that there will be 40 delegates.

Sir Daniel Morris has left the local arrangements to the above committee and a programme is now being arranged.

The members of the Conference are expected to arrive on Thursday, 10th January, or the morning of Friday the 11th, and the week end will probably be filled up with excursions to view the various industries in Jamaica. Monday, Tuesday and Wednesday will be taken up by the reading of papers and discussions. The Conference will be held in the Board School, (the old Mico College, Hanover Street, Kingston.)

His Excellency the Governor will hold a reception on the afternoon of the 12th, and will give a ball on the 16th during the visit of the delegates.

Following the example of the other places where the Conference has been held, it is hoped that the reputation for Jamaica for hospitality will be sustained. It is intended that the various excursions will be provided free for the delegates. The Governor has promised free Railway passes, but it will be necessary to raise a fund for the entertainment of the visitors, and the following have already subscribed.

His Excellency the Governor	£10	0	0
C. E. deMercado, Esq.	5	0	0
Hon. Lieut.-Col. Ward	5	0	0
Hon. Dr. Pringle	5	0	0
Hon. H. Clarence Bourne	3	0	0
Hon. J. W. Mitchell	3	0	0
Hon. W. Fawcett.	2	2	0
Robert Craig, Esq.	2	0	0
D. S. Gideon, Esq.	2	2	0
Hon. H. E. Cox	2	2	0
E. A. H. Haggart	2	2	0
G. D. Murray, Esq.	1	1	0
Hon. T. H. Sharp	1	1	0
J. R. Williams, Esq.	1	1	0
R. S. Gamble, Esq.	1	1	0

The Organising Committee carrying through the arrangements is a Joint Committee of the Board of Agriculture and the Agricultural Society, consisting of the Hon. H. Clarence Bourne, Hon. W. Fawcett, Hon. Lieut.-Col. Ward, Robt. Craig, Esq., J. R. Williams,

Esq., and Mr. John Barclay as Secretary, to whom subscriptions may be paid.

A Reception Committee is about to be formed and the following amongst others will be invited to receive the delegates and take part in the Conference :—

Members of the Privy Council.

Members of the Legislative Council.

Custodes.

Members of the Board of Agriculture.

Members of the Board of Management of the Agricultural Society.

Members of the Board of the Institute.

Members of the Council Chamber of Commerce.

JOHN BARCLAY, Secretary to the Committee.

List of Countries to which the Journal of the Jamaica Agricultural Society is regularly sent,

Exchange Publications are also received from those marked *

Africa :—*Cape Colony, *Natal, Northern Nigeria, Southern Nigeria, Lagos, *Orange River Colony, *Transvaal, Gold Coast, Uganda. Argentina. Australasia :—*New South Wales, *Queensland, New Zealand, Fiji, *Western Australia, *Victoria.* Brazil. British *Guiana, *British Colombia, *British Honduras. Burma. *Canada. *Ceylon. *Colombia. *Costa Rica. *Cuba. *Dutch Guiana. *France. *Great Britain. Germany. Guatemala. Haiti. *India. Malay States. *Mexico. Nicaragua. Panama. *Paraguay. *Reunion. *St. Domingo. Uruguay. West Indies :—Barbados, Antigua, Dominica, *Grenada, St. Vincent, St. Lucia, St. Christopher, St. Kitts, St. Thomas, Montserrat, Nevis, *Tobago, *Trinidad, Virgin Islands.

SHOWS TO BE HELD.

The following Shows are arranged :—

Red Hills, St. Andrew, 26th December, 1896.

Appleton, 26th December, 1906.

Savanna-la-Mar, 1st January, 1907.

Montpelier, 28th February, 1907.

Christiana, 14th March, 1907.

Trinity Ville, 14th February, 1907.

BRANCH NOTES.

FORUS.—The monthly meeting of this Branch was held in the Church Schoolroom on Monday evening, 5th November, 1906, when at roll call there were present : Messrs W. A. Morgan, V. N. Magnus, S. Price, J. L. Hibbert, F. Dixon, D. Crosbie, A. Reddish, M. Forrest, L. A. Williams, W. Hylton, R. S. Munroe, Treasurer, A. S. Rose, Secretary. In the absence of the Vice-President, Mr. V. N. Magnus was elected to the chair. The minutes of last meeting were read and confirmed. Business arising out of the minutes—Mr. Forrest asked whether Mr. Chambers was written to, asking for information on the selling of produce, vegetables, etc., etc., for the benefit of members of the Society as was directed to be done at last meeting. The Secretary stated that owing to press of work he could not make it convenient. Messrs. Crosbie, Morgan and McPherson contended that this should have been done. The chairman thought it a matter of importance, and it should have been carried through, and asked that at his earliest opportunity he give the matter his attention. Mr. Morgan asked if the St. Toolis road had been visited. The Secretary stated that owing to the incessant rain the chairman and himself could not get to the spot. Mr. Forrest suggested that something should be paid to the Secretary for his time, that when he does not do his duty he could be queried. Mr. McPherson agreed that he (the Secretary) should be remunerated as he had been very energetic in his office. Mr. Morgan thought it was now too late in the year to suggest any remuneration, but did not disagree with the suggestion for the coming year. Mr. Crosbie was of opinion that the Society was not in sufficient funds to offer any payment to the Secretary, but if each member would guarantee to pay 3d. per month then it would be well. The Secretary thanked the mover for his sympathy towards himself and family, and showed where there was a plenty of work which required much time which he could not afford. He was specially asked to continue his office to the end of the year. Mr. Crosbie asked what was the amount in hand of the Treasurer, when he (the Treasurer) replied about 60s. but unfortunately his book was not placed on the table. This brought the business of the evening to a close.—C. ROWLAND, Ast. Sec.

* * *

MALVERN.—Some time ago Mr. J. Thomson Palache, Agricultural Instructor for St. Elizabeth, arranged to hold a meeting at Bethlehem School in this district, for the purpose of organizing a Branch Agricultural Society for the Santa Cruz Mountains. The meeting as arranged was held on the afternoon of Wednesday last, the 21st inst., when about sixty small settlers and others were present. The Revd. S. C. Ashton, Bethlehem Training College, read an apology from Mr. Palache, who was unfortunately absent owing to indisposition. Mr. Ashton subsequently asked if the meeting was in favour of forming a Branch Society. He regretted that no one present was acquainted with the conditions under which a Society could be affiliated with the Parent Society; the conditions under which they would receive the "Journals" (although he understood the subscription in Branch Societies to be 1s.), or any other details on conditions, but he asked if they desired to proceed with the formation of a Branch. Mr. N. E. Seal, teacher, Malvern, said that anyone passing along the mountains and seeing the cultivations, would recognise that there was room for improvement, and as a Branch Society would tend to that end, he proposed that a Society be formed. This motion was seconded and carried unanimously. Nominations for a President were then asked for, and on the motion of Miss M. M. Barrows, Hampton High School, seconded by Mr. Isaac Murray, Mr. Stafford Maxwell, Elphinstone, was unanimously appointed, and Mr. Maxwell, who was present took the chair. Mr. Maxwell said their next duty was to appoint a Secretary, and he moved that Mr. John Stewart, Malvern, be appointed. The Revd. S. C. Ashton in seconding, said he had much pleasure in doing so, as he knew it to be in accordance with the wish of Mr. Palache. This motion, along with the appointment of Mr. Ashton as Treasurer, was unanimously carried. Of those present, 42 subsequently intimated their intention of becoming members of the Branch and enrolled their names. The President intimated that he proposed to give a special prize of one guinea for the holding of five acres and under, most improved during the

ensuing year, the entrance money to be threepence, and competition confined to the members of the Santa Cruz Mountains Society; the entry monies of the competitors under and up to 5s. to be awarded as a second prize—and balance, if any, to be awarded as additional prizes; the judges to be appointed by the Branch Society. Mr. Maxwell was awarded a hearty vote of thanks for his offer. It was thereafter arranged to hold the next meeting of the Society when Mr. Palache could be present.—JOHN STEWART, Hon. Sec.

RED HILLS.—In the month of May, 1906, the Red Hills Branch Agricultural Society was started by Mr. Barolay, the Secretary of the Jamaica Agricultural Society, and Mr. Briscoe, Travelling Instructor, who visited the district for the purpose. By the month of August the officers were all duly elected. H. G. T. Drew, Esq., of Mavely, was unanimously elected its first President, with L. G. Desporte, Esq., of Industry, and O. A. M. Feurtado, Esq., of Belle Vue, Vice-Presidents; Arthur Rodgers, Esq., of Sterling Castle, an Apiarist, Treasurer, and Mr. James M. Walker, Secretary. The Committee of Management are:—Messrs. Albert Lewis, Henry Parker, R. Dreckett, Wm. Bonfield, David Phillips, Jacob Matthews, E. Reese, Chas. Lee, Wm. Lewis, Saml. Fewlin, Arthur Rodgers, Edward Jackson. No. of members, 44. The meetings are held on the second Monday in each month at 4 p.m. Our President has been very regular in his attendance, and is doing all he can for the advancement of the Society. At our September meeting, it was moved by the President and unanimously carried, that this Society should have an early Show. A committee with full power was appointed to visit the place proposed and make all preliminary arrangements. Our usual meeting was held on the 9th October. Present: H. G. T. Drew, Esq., President, in the Chair, A. Rodgers, Esq., Treasurer, 18 members, and the Secretary. The first business brought up was the intended Show. It was reported that the continual rains had interfered much with the movements of the committee, and so a proper report could not be given till the next meeting, which will be held on the 12th November. Travelling Instructor Briscoe is regular in his visits to this district. His name is becoming a house-hold word. He has visited the homes of almost every member of this Society, and questions are often asked, "When is he coming next, and what outlying district he will take up?" His visits are looked forward to with pleasure. One of our members, Mr. Parker, acts always as his guide.—JAMES M. DULLER, Hon. Sec.

HANOVER.—A meeting of this Branch Society was held at Lucea on the 17th November. In the absence of the President and Vice-Presidents, the Revd. D. A. Rotknie, M.A., was called to the chair. Two barrels of potatoes and a large quantity of seeds had been distributed. The jippi-jappa class at Brownville has twelve pupils who are making good progress. Inquiries were made about starting a class at Dry Hill. The arrangements were not complete, but it was left with the Secretary to complete these. It was hoped that the Government would be able to purchase arrowroot in the Island. The Secretary was in correspondence with the Secretary of the Jamaica Agricultural Society on the subject. It was agreed to express regret that the Board of Agriculture and the Agricultural Society had decided to remove Mr. Cradwick from the Western Parishes, where he was doing good work. Read letter stating that Mr. H. D. Mennell had been appointed Instructor for the Western Parishes. The Secretary stated that he had invited Mr. Mennell to meet the Secretary at its meeting, but he had not been able to arrange it, as he was under the guidance of Mr. Cradwick at present. A statement of accounts were submitted, as also a supplementary account of the Show. It was agreed that at the next meeting the question of a Show and the Prize Holdings Scheme should be discussed.—JOHN F. GARTSHORE, Hon. Sec.

A Committee meeting of the Westmoreland Planters' Association was held on 22nd November; amongst other business transacted, a special committee was nominated, consisting of Hon. W. A. S. Vickers, Messrs. Walter Woollingscroft and C. S. Farquharson, to consider the consequences to the sugar industry of Jamaica of the abrogation of the Brussels Conference Treaty.

(18) C. O. FARQUHARSON, Secretary.

I. A. R. I. 75.

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